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FM 57-35

DEPARTMENT OF THE ARMY FIELD MANUAL

Ch 1

AIRMOBILE OPERATIONS

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HEADQUARTERS, DEPARTMENT OF THE ARMY
OCTOBER 1967

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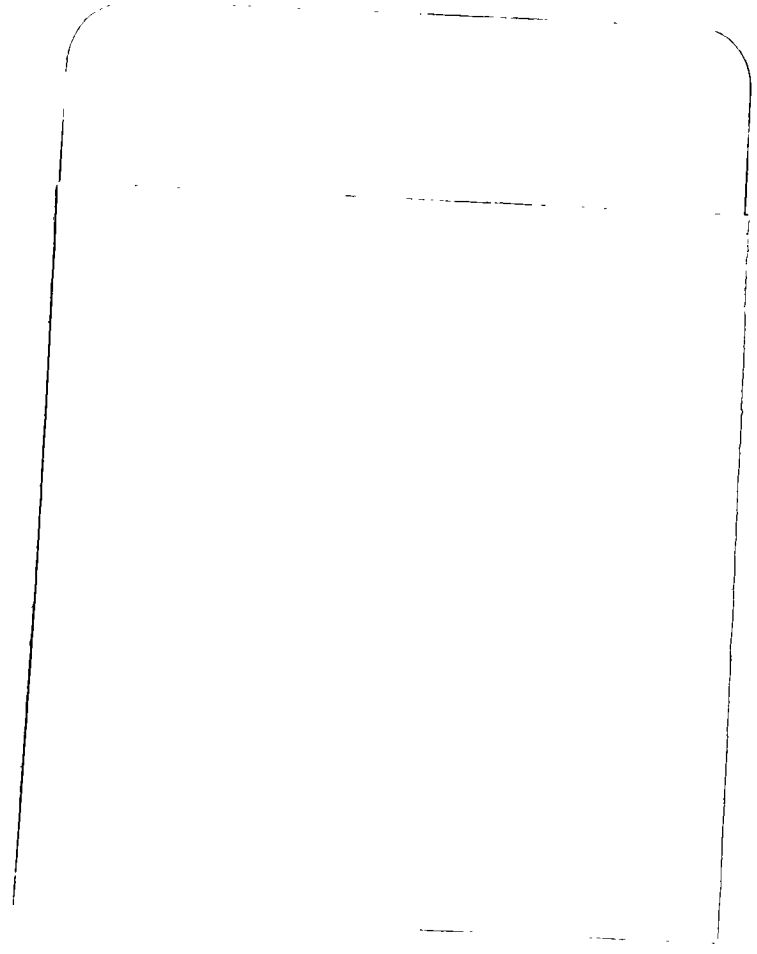

FIELD MANUAL
No. 57–35

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *30 October 1967*

AIRMOBILE OPERATIONS

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*This manual supersedes FM 57–35, 17 September 1963.

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CHAPTER 1

GENERAL

Section I. INTRODUCTION

1–1. Purpose and Scope

a. This manual provides doctrinal guidance for commanders and staffs in planning and executing airmobile operations. The material presented is applicable to nonnuclear warfare, and appropriate modifying guidance for nuclear warfare and employment of, and protection from, chemical, biological, and radiological agents is integrated throughout the manual. The manual is also applicable to stability operations.

b. The doctrine in this manual does not change the doctrine, procedures, or command relationships for air movement in the assault and subsequent phases of joint airborne operations, nor does it alter the role of the U.S. Air Force in providing the U.S. Army with air transport as established by current policy and directives.

(1) When required in furtherance of the combat mission of the Army, the Air Force will sustain an air line of communications (ALOC) to divisions and brigades and will deliver to lower echelons when necessary.

(2) Helicopters and follow-on, rotary-wing aircraft assigned to Army units for intratheater movement, supply and resupply functions will be utilized to provide airlift support of Army forces in accordance with operational requirements. The tactical airlift capability of Army rotary-wing aircraft and Air Force fixed-wing aircraft will be utilized to take maximum advantage of the inherent capabilities of each type aircraft. Air Force fixed-wing aircraft and Army helicopters will be employed in a mutually complementary role to accomplish tactical airlift requirements in a theater of operations.

(3) Integration of U.S. Army and U.S. Air Force air movements in a theater of operations in support of airmobile operations is contained in FM 100–27/AFM 2–50.

c. This manual deals with the tactical aspects of airmobile operations: the planning and conduct of airmobile operations by combat echelons from small patrols to a battalion-size airmobile task force. The principles and techniques are applicable to the infantry, airborne, and airmobile battalion, the armored cavalry regiment, and elements of armored and mechanized divisions.

d. Users of this manual are encouraged to submit recommendations to improve its clarity or accuracy. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded direct to Commanding Officer, United States Army Combat Developments Command Infantry Agency, Fort Benning, Georgia 31905. Originators of proposed changes which could constitute a significant modification of approved Army doctrine may send an information copy, through command channels, to the Commanding General, United States Army Combat Developments Command, Fort Belvoir, Virginia 22060, to facilitate review and followup.

1–2. Characteristics of Airmobile Operations

Airmobile operations differ from purely ground combat operations in the following aspects:

a. Airmobile operations usually are executed in areas lightly defended by the enemy, with the advantage of initial tactical surprise, or in areas subjected to preassault nuclear or nonnuclear preparation. An airmobile operation is one in which combat forces and their equipment move about the battlefield in air vehicles under the control of a ground force commander to engage in ground combat. It is characterized by surprise, flexibility, maneuver, timing, accuracy, and speed over extended distances and terrain obstacles.

b. Airmobile forces can land directly on, or near, their objectives when the objectives are sparsely defended or the enemy is suppressed. An airmobile force is composed of ground combat elements and Army aviation elements combined to conduct airmobile operations.

c. Airmobile forces can bypass terrain obstacles, overfly barriers, bypass enemy positions, and strike objectives in otherwise inaccessible areas.

d. Airmobile forces are sufficiently flexible to rapidly redeploy to conduct subsequent offensive or defensive operations.

e. Adverse or marginal weather often conceals the airmobile force commander's intentions and tends to favor surprise and deception. Conversely, adverse weather may restrict airmobile operations.

f. Airmobile forces can attack enemy forces from any direction (thus taking maximum advantage of surprise) and cause an enemy commander to react prematurely and further expose his forces to other attacking forces and/or fire support elements.

g. Resupply and reinforcement airlifts are necessary for airmobile forces to sustain combat when this cannot be accomplished by overland means.

h. The types and amounts of heavy equipment that can be airlifted into an objective are limited by the allowable cargo loads (ACL) and the dimensions of the cargo compartment of the available aircraft.

i. Airmobile forces have limited ground mobility and firepower (especially antitank weapons) in an objective area; consequently, they are particularly vulnerable to attack by enemy armor.

j. Air superiority over the objective area and suppression of enemy ground fire are desirable for the conduct of airmobile operations.

k. Airmobile forces are most vulnerable during landing and assembly, and during takeoff in unsecured areas.

l. The speed and flexibility of airmobile operations enhance their employment in psychological and deception operations.

m. Forces engaged in airmobile operations present difficult nuclear targets.

n. The airmobile capability of a unit provides additional options in the size and commitment of reserves.

1–3. Concept of Employment

a. Airmobile forces are employed in the furtherance of a ground combat effort. The fundamental concept of Army airmobility operations provides for use of Army aircraft to increase the ground combat element's capability to perform, and provide better balance among, the five functions of land combat—intelligence, mobility, firepower, command, control, and communications; and combat service support. U.S. forces employ this concept in two ways: first, by allocating aircraft to ground units, thus enhancing their combat capability, and second, by organizing, equipping, and training units to use Army aircraft in accomplishing missions, as is done by the airmobile division. The mobility of ground units is multiplied many times through the large-scale use of helicopters in airmobile operations, thus contributing to an increase in combat effectiveness. Their use permits the ground comander to take advantage of the speed and flexibility of Army aircraft in accomplishing a variety of tasks. The capability of conducting airmobile operations enables the comander to—

(1) Threaten areas in rear of the enemy, thus causing the enemy to divert com-

bat elements to protect vital installations and hold key terrain.

(2) Overcome distances quickly, overfly barriers, and bypass enemy defenses.

(3) Extend the area of operations over which he can exert his influence.

(4) Deploy his reserve forces more effectively by holding highly mobile reaction forces in dispersed areas.

(5) Exploit his combat power with increased tactical mobility.

(6) Reduce the vulnerability of his force to nuclear attack without significantly increasing reaction times by holding highly mobile reserves in dispersed areas.

b. The capability of ground combat units and Army aviation units to conduct airmobile operations must be highly developed through the conduct of frequent airmobile unit training and the development of pertinent unit standing operating procedures (SOP). Subordinate unit SOP are based on those prepared by the headquarters having control over the combined ground combat and Army aviation units which compose the airmobile force. SOP should include provisions for transportation of assault elements of the infantry and airborne battalions by utility helicopters.

c. Combat support and combat service support elements of the brigade/division planned for direct support to the infantry/airborne battalions/brigades should be transportable by medium cargo helicopters in order to provide adequate support.

d. Because of the availability of a large number of organic aircraft and organic supply and maintenance elements, and the refinement of the TOE equipment toward airlift requirements, an airmobile division has the capability to conduct airmobile operations over an extended period in comparison with other type divisions which lack such organic support.

1–4. Missions.

The missions of airmobile forces may include—

a. Reconnaissance and security missions designed to block or screen avenues of enemy approach during an operation such as—

(1) Covering force.

(2) Flank guard.

(3) Rear area security.

b. Raids.

c. Antiairborne, antiairmobile, and counterguerrilla operations.

d. Exploitation of the effects of nuclear, chemical, and biological weapons and conventional bomber strikes.

e. Seizure and retention of key terrain.

f. Feints and demonstrations.

g. Economy-of-force missions.

h. Counterattack of enemy penetrations.

i. Ship-to-shore operations.

j. Amphibious operations.

k. Shore-to-shore operations (such as river crossings).

l. Riverine operations.

m. Envelopment and over-obstacle assault operations.

n. Composition of a highly mobile reserve.

o. Long-range patrols.

Section II. COMPOSITION, COMMAND, AND RESPONSIBILITIES

1–5. General

a. The composition of an airmobile force is dictated by specific mission requirements. The force must contain a ground combat element and an aviation element; it may also contain one or more support elements such as fire support, reconnaissance, engineers, and elements of any of the several combat service support elements. Because of infantry's versatility and air transportability, the main element of an airmobile force is normally infantry. Supporting units may be attached to, in direct support of, or under the operational control of, the supported unit.

b. Airmobile forces must be versatile. The achievement of versatility requires imagination in organizing a force with the correct balance of elements necessary for various operations. To take full advantage of the capability for rapid movement and the flexibility of an airmobile force, commanders and staff officers of such a force are required to plan and conduct operations rapidly.

1–6. Command Relationships

a. Because of the great demand for airlift throughout the field army, aviation elements normally will be placed in support of a ground unit force for the shortest possible time consistent with the mission of the airmobile force. The lowest echelon capable of controlling and coordinating the entire airmobile operation exercises control of the aircraft in accordance with the overall plan. This includes coordination of artillery, air defense, air support, and the regulation of Army air traffic with other users of the airspace over the area of operations, and coordination of the airmobile force plan of maneuver and plan for combat service support with those of higher, subordinate, and adjacent units. The air defense element (ADE) in the tactical operations center (TOC) has the responsibility for coordinating the use of airspace. During the period of support, the aviation unit supports the ground force in the manner specified by the directing headquarters (which has control over both the ground force and the airlift aviation unit). The airmobile division has a large number of organic aircraft. Through normal training, ground and aviation commanders of this division perfect command procedures and relationships. This type of proficiency is not easily achieved by other divisions.

b. The speed of movement, requirement for precise timing, vulnerability of aircraft to ground fire, and initial lack of supporting weapons with the airmobile forces make airmobile operations unique. Ground and aviation units must be well trained in common SOP (app G) and well coordinated in planning and execution. The directing headquarters must clearly delineate authority and responsibility.

c. The command relationship established between the ground combat unit and the airlift aviation unit depends primarily on the capability of the ground unit to plan, coordinate, and control the air movement. Normally, the airlift aviation unit is placed in direct support of the ground combat unit, with control of both units retained by the headquarters that directs and supports the operation. The decision to attach an aviation unit to a ground combat unit must take into consideration (among other factors) whether the ground unit can control the aviation elements and can supply the large amounts of ammunition and fuel normally required by the aviation unit. In keeping with the principle that the lowest echelon capable of controlling and coordinating the airmobile operation exercises control of supporting aircraft, the operational control status places no logistical responsibility for the supporting unit on the supported unit; consequently, operational control is usually the desired relationship.

d. The following example illustrates how the foregoing factors influence the command relationship.

(1) A corps airlift aviation battalion is placed under the operational control of a division to support a battalion-size airmobile operation. The division commander further places the aviation battalion under operational control of a brigade for the duration of the airlift phase of the operation. If the requirement exists, the division commander may leave one company of utility helicopters under the operational control of the brigade until termination of the operation.

(2) In the airmobile division, the formation of an infantry brigade, battalion, or smaller unit task force that will conduct operations over an extended period of time at considerable distance from its base of operations may require that the airlift units be attached. If this degree of control is necessary, but relief of the supported

unit commander in planning and logistical tasks is desired, provisions for necessary logistical assistance can be made in the operations order by mutual agreement between supporting and supported unit commanders with assistance from the parent aviation unit commander.

1–7. Responsibilities

a. Units designated to conduct airmobile operations will be formed into an airmobile task force. The ground commander is the force commander. In this instance, the support aviation commander is designated the aviation mission commander.

b. The responsibilities of the commanders of the various elements of the airmobile task force with respect to the planning and execution of airmobile operations are discussed in succeeding chapters. Overall responsibility for the operation must be vested in the ground commander of the lowest echelon which has the means of providing the required support from outside the objective area. In some operations, this may be the airmobile task force commander himself; in other cases, especially in those operations involving small units, responsibility will be vested in a higher headquarters. In stability operations, overall responsibility and authority for airmobile operations involving host country forces and U.S. Army aviation units are vested in the senior U.S. advisor present. He must decide whether a requested airmobile operation is warranted, and, if so, to what extent U.S. Army aviation will support the operation.

1–8. Utilization of Aviation Resources

The ground commander must utilize the aviation resources to the maximum possible degree. Aircraft should not be retained under direct control of the ground commander with no aircraft requirements. The aviation mission commander must be given the flexibility of shifting aircraft not in use to missions for other combat units or for required maintenance. Plans for commitment of preplanned reaction forces should include provisions for airlift to be on standby or alert. The decision to release supporting aviation resources is determined by the airmobile task force commander. The aviation mission commander is responsible for insuring that the airmobile task force commander is informed of subsequent or competing missions for his aviation resources. On occasion, the airmobile task force commander may find it necessary to retain the aviation support beyond the originally planned time. In this instance, he must immediately inform higher headquarters. The aviation mission commander will continue to provide aircraft support until released by the airmobile task force commander.

CHAPTER 2

ARMY AVIATION SUPPORT

2–1. Army Aviation Organization and Employment

See FM 1–5, FM 1–15, and FM 55–46 for details of aviation organizations and their employment. The provisions of this chapter apply equally to large- and small-scale airmobile operations. Where the operations require the use of only a few aircraft, the planning and execution will reduce the considerations, but those listed herein are of no less importance regardless of the size of the aviation support element.

2–2. Command Staff Responsibilities

When an aviation mission commander is notified that he will support an airmobile operation, the aviation unit commander, the aviation staff officer of the unit to be supported, and an aviation unit liaison officer contact the airmobile task force commander and his staff to advise the commander in all matters pertaining to the aviation unit organization and employment. The aviation mission commander is considered to be a special staff officer of the task force commander with duties and responsibilities as stated in FM 101–5 for the aviation officer. Aggressive, habitual liaison with supported units frequently will enable aviation units to gain early knowledge of pending operations. Even sketchy information, received in time, can be used to begin planning and may allow reconnaissance and coordination earlier in the planning phases. Adequate SOP and "set plays" reduce the time required to react to immediate missions or changing situations. Aviation command and staff responsibilities are to—

a. Assist the airmobile task force commander and his staff in the planning and coordination of the airmobile operation in the area pertinent to aviation.

b. Determine the aviation resources available to support the operation and inform the supported ground unit commander.

c. Plan for employment of organic aerial surveillance and reconnaissance capabilities over the area of operations and request additional surveillance and reconnaissance missions that are beyond the capabilities of his unit.

d. Compute maximum allowable cargo load (ACL) for the specific type aircraft on the day and time of the operation. This is especially important in case of helicopters, since their load-carrying capability is influenced by density, altitude, and other factors which may change not only on a given day but also during the operation.

e. Establish, coordinate, and operate air movement control facilities. This control may be provided by command and control aircraft, flight leaders, pathfinders, tactical operations center personnel, liaison officer (s), air traffic control units, flight operations center, or any combination of the above. In certain situations, trained personnel from the supported unit may be required to assist in this control function.

f. Organize aircraft units so as to support the loading plan and landing plan as approved by the airmobile task force commander, maintaining aviation unit integrity far as possible. Tactical cohesion of aviation and ground units should be maintained to the extent practicable, but not be an overriding consideration to get maximum utilization of available aircraft.

g. Conduct a detailed briefing for the participating personnel. This briefing includes the aviation aspects of the operation, as well as the time schedule for the operation, from aircraft station time in the aircraft ready area to the completion of the operation.

h. Insure provisions are made for refueling, rearming, and aircraft maintenance. Airmobile operations emphasize maximum initial airlift into the objective area, but resupply airlifts are planned. Aircraft maintenance support must be planned to provide on-site maintenance (normally limited) to insure maximum continuous aircraft availability.

i. Coordinate timely, secured, and orderly movement of aircraft into loading areas (or pickup zone). Timely departure of aircraft from their ready area(s) must be considered.

j. Coordinate division aviation activities and operations with those of the aviation unit in the selection of sites for its support facilities, if sites other than those within the loading area are necessary.

k. State the requirement for air column control, naval gunfire, tactical air support, and artillery fire adjustment. This is a normal mission for the division aviation elements in support of airmobile operations. Detailed staff planning and coordination minimizes the chances for any last-minute difficulty. When a nuclear preparation is to be fired in support of the airmobile operation, the division aviation elements should plan for a timely poststrike survey. This relieves the supporting aviation unit to perform its primary mission.

l. Plan for continuous aviation support of the airmobile force in the objective area. This normally consists of a limited number of airlift aircraft, armed helicopters, and observation and surveillance aircraft to facilitate command and control of the operation and to increase the capabilities of the reconnaissance and security force.

m. Coordinate the employment of the armed helicopters. This is accomplished among the task force commander, the aviation mission commander, and the fire support coordinator (FSCOORD). The armed helicopters are ideally suited for the escort of the airmobile force into the objective area. Once there, the armed helicopters can be used for reconnaissance and assistance in the security of positions. This is especially desirable during the seizure of assigned objectives by other elements of the airmobile task force.

n. Arrange for current aviation weather forecasts. Flight weather information is normally available from the Air Force weather detachment at field army, corps, and division, or from the command S2/G2 or staff aviation officer.

o. Plan for aeromedical evacuation of the airmobile task force casualties.

2–3. Aviation Support Unit Plans

a. As soon as possible in the planning sequence, the supporting aviation mission commander prepares and disseminates to members of his command the instructions they need to carry out their support mission. As soon as preliminary alert information is available, or when the implementing directive which specifies the airlift or support requirement is received, the aviation mission commander can analyze the mission to—

(1) Establish appropriate liaison.
(2) Determine the special equipment required by his unit.
(3) Obtain the weather forecast and determine the navigation aids required.
(4) Determine what maintenance support is needed.
(5) Inform the airmobile task force commander of the lift capability of the aircraft available and the flight time from the pickup zone(s) to the landing zone(s).
(6) Determine the responsibilities and requirements of the command relationship specified, if not prescribed in SOP.
(7) Determine the required number of lifts.

b. See paragraphs 3–9 through 3–15 for further planning done by the aviation mission commander after he learns the airmobile task force commander's tentative, tactical plan. SOP checklists may be used in planning. Checklists may provide immediate responses when time is critical. (See app H for sample

checklists.) Refer to FM 1–15 for aviation support planning.

2–4. Aircraft for Training

If practical, aircraft and personnel to be used in the operation should be made available for familiarization training and rehearsals with the airmobile task force.

2–5. Refueling and Rearming

a. The aviation mission commander is responsible for planning aircraft refueling and rearming facilities and the location of refueling points in coordination with the airmobile task force commander.

b. The refueling and rearming facilities should be prepositioned in the loading area or in a ready area adjacent to the loading area. This permits the aircraft to maintain the highest possible lift capability in subsequent lifts. In some instances, aviation refueling is done in secured and prestocked forward areas.

2–6. Movement to Loading Sites (Pickup Zones)

a. The aviation mission commander assists in the selection of loading sites to insure that they meet requirements. When the loading sites have been selected, it is the aviation mission commander's responsibility to insure that all participating personnel of his unit are briefed on the location of, routes to, and arrival time at, the loading sites.

b. Factors in the successful movement of aircraft to the loading sites include—

(1) Flight routes that afford maximum security.

(2) Supporting fires en route.

(3) Secured approaches to the loading site or pickup zone. (Aircraft are especially vulnerable to ground fire during approach.)

(4) Security in the loading site or pickup zone. A combination of screening smoke and radio confirmation may be used to insure that the area is secure. (Aviation and ground units must disperse as much as is practical to minimize the effects of enemy attack.)

(5) Coordination to insure maximum use of available supporting fires to include armed escort helicopters, tactical air support, artillery fires, and other means of protecting the lift aircraft.

(6) Careful movement planning to insure timely arrival at the loading site or pickup zone.

(7) In-flight and landing formations should be selected that minimize the effects of terrain, weather, and hostile fire. Landing formations should be selected which take maximum advantage of the size and shape of the site and which facilitate the rapid loading of troops, supplies, and equipment.

(8) Provision of terminal guidance, to include maximum use of pathfinder personnel, to insure the successful and timely arrival of the aviation support.

(9) Use of prearranged signals, difficult for the enemy to compromise, to identify pickup zone(s). Artillery or mortar smoke fired near the pickup zone may also be used as a reference point.

(10) Use of other aircraft, to include armed helicopters, the airborne command post helicopter, or other control aircraft, to vector the lift aircraft to the pickup zone.

(11) Care must be exercised in the choice of the method of movement into the pickup zone. Large gatherings of troops and aircraft in a loading zone which normally does not have much air activity will usually alert insurgents and constitute a breach of security. It may be more advantageous to infiltrate into the pickup zone in single or small flights.

2–7. Loading

a. The aviation mission commander or the aviation unit liaison officer advises and assists

the airmobile task force commander in preparing loading plans based on the lift capability of the aircraft. The liaison officer insures that loads (personnel, equipment, or cargo) do not exceed the capacity of the aircraft.

b. Ideal conditions for loading do not always exist. Many situations, such as when time is critical in exploiting a tactical advantage, will require loading without plans and may necessitate the making up of loads on site, based upon the number and type of aircraft that are actually committed to the specific operation. (Sample type loads are shown in app E.) Maximum advantage is taken of space and lift available, with consideration for tactical integrity (fig. 2–1). Available aircraft not designed for troop lift should be utilized to haul additional logistical items during all phases of the operation, and to evacuate patients, prisoners, and administrative returnees. For all situations, the following minimum basic principles apply:

(1) Unit commanders strive for tactical loading. All individuals carry their essential combat equipment. Ammunition accompanies each weapon (fig. 2–2).

(2) Key personnel and equipment are distributed among several aircraft.

(3) Each load is balanced and manifested by the supported unit, if time permits, and cargo loads are lashed.

(4) As far as possible, equipment is loaded in the same aircraft with all parts or accessories needed to keep the equipment operational.

(5) Crews accompany crew-served weapons.

(6) Time available for loading/unloading.

c. Considerations which influence the decision to load supplies and equipment internally or externally include—

(1) Distance of haul.

(2) Size of equipment.

(3) Equipment not on wheels (containers, etc.).

(4) Aircraft availability.

(5) Priorities.

(6) Enemy.

(7) Terrain.

(8) Fragility of items.

(9) Protection against adverse weather conditions.

(10) Density altitude.

(11) Electrically-actuated ordnance.

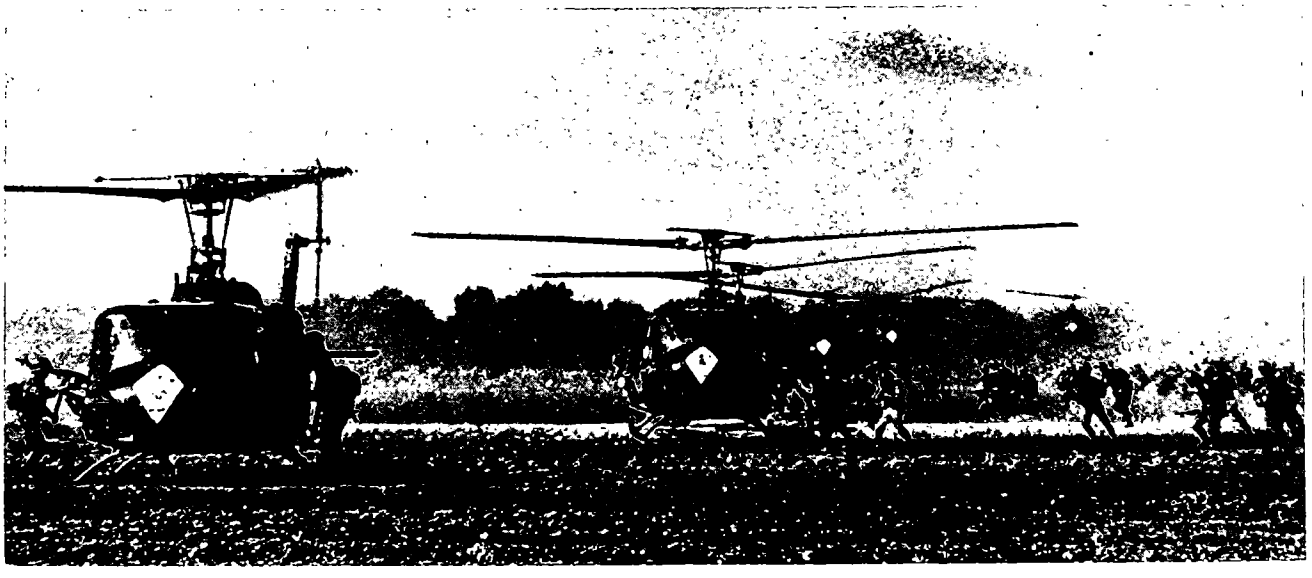


Figure 2–1. Assault force troops loading into helicopters in pickup zone.

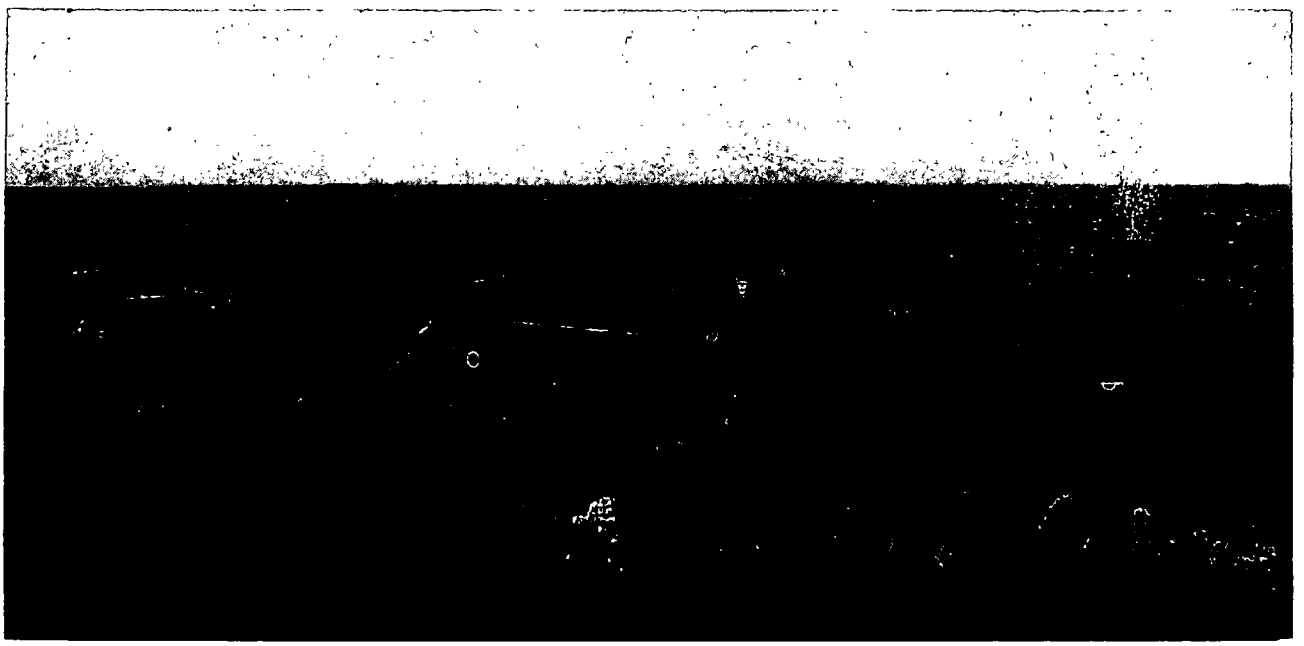


Figure 2–2. Airmobile artillery lifted externally.

(12) Denial of intelligence to the enemy.
(13) Speed en route.
(14) Security of the landing zone where ground time for unloading would expose aircraft to hostile fire.
(15) Availability of nets, containers, and slings for carrying equipment externally.
(16) Time available for loading or unloading.
(17) When precise placement is desired.

2–8. Capabilities and Limitations of Army Aircraft

a. Helicopters. There is a balance between the capabilities and limitations of a helicopter. When one of three variables—fuel, range, or payload—is changed within existing weather conditions, at least one of the other two variables will also change.

(1) *Capabilities.*

(*a*) Under normal conditions, helicopters can ascend and descend at relatively steep angles, a capability which enables them to operate from confined and unimproved areas.

(*b*) Troops and their combat equipment can be unloaded from a helicopter hovering a short distance above the ground with trooper ladders and rappelling means. The trooper ladder can also be used to load personnel when the helicopter cannot land. Troops may also jump from low-hovering helicopters.

(*c*) Cargo can be transported as an external load and delivered to areas inaccessible to other types of aircraft or to ground transportation.

(*d*) Normally, helicopters are capable of flight in any direction.

(*e*) Because of a wide speed range and high maneuverability at slow speeds, helicopters can fly safely and efficiently at a low altitude, using terrain and trees for cover and concealment.

(*f*) Their ability to fly at high or low altitudes and to decelerate rapidly, combined with their capacity for slow forward speed and nearly vertical landing, enables helicopters to operate under marginal weather conditions.

(*g*) Helicopters can land on the objective area in a tactical formation, landing zones permitting.

(*h*) Night landings and takeoffs can be made with a minimum of light.

(*i*) Helicopters flying at low levels are capable of achieving surprise, deceiving the enemy as to landing areas, and employing shock effect through the use of suppressive fires.

(*j*) Engine and rotor noise may deceive the enemy as to the direction of approach and intended flightpath.

(2) *Limitations.*

(*a*) The high fuel consumption rate of helicopters imposes limitations on range and ACL. Helicopters may be partially defueled to permit an increased ACL. However, partial defueling reduces the range, and flexibility factors, which must be considered in planning.

(*b*) Weight and balance affect flight control. Loads must be properly distributed to keep the center of gravity within allowable limits.

(*c*) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or more) will limit or preclude use of helicopters.

(*d*) On occasion, engine and rotor noise may compromise secrecy.

(*e*) Aviator fatigue requires greater consideration in the operation of rotary-wing aircraft than in the operation of fixed-wing aircraft.

(*f*) The load-carrying capability of helicopters decreases with increases of altitude, humidity, and temperature. This limitation may be compensated for through reduction of fuel load.

(*g*) Wind velocities above 15 knots for utility and 10 knots for medium and heavy helicopters affect the selection of the direction of landing and takeoff.

b. Airplanes.

(1) *Capabilities.*

(*a*) Tactical airplanes can operate from relatively short landing areas if the terrain is fairly smooth and level.

(*b*) Airplanes have a greater range than helicopters and require less maintenance.

(*c*) On some airplanes, cargo can be transported as an external load suspended from bomb shackles on the wings and can be dropped with a high degree of accuracy from low altitudes.

(*d*) Landings and takeoffs at night can be made with a minimum of light.

(2) *Limitations.*

(*a*) Airplanes may require improved landing strips.

(*b*) Hail, sleet, icing, heavy rains, and gusty winds (30 knots or more) will limit or preclude use of airplanes.

(*c*) A wind velocity above 5 knots affects the selection of the direction of landing and takeoff.

c. Special Considerations. The capabilities and limitations of helicopters and airplanes mentioned above are variable. Commanders of supporting aviation units provide specific data for each type aircraft and operation. For specific capabilities of aircraft used to transport personnel and equipment, see TM 57–210.

2–9. Night and Limited Visibility Operations

a. General. The tactical situation may dictate the conduct of airmobile operations during darkness or periods of limited visibility. The commander may further desire to take advantage of these conditions to gain maximum surprise or deception, maintain the momentum

of daylight operations, reinforce or extract committed units and position maneuver or fire support elements for further operations. Night operations require a higher level of individual and unit training and proficiency than day operations. The use of pathfinders or air traffic control (ATC) units is highly desirable and in the majority of cases necessary for night and limited visibility movement of helicopters and airplanes to help overcome guidance and control problems inherent in these operations. Flares, helicopter-mounted searchlights, and other suitable techniques may be used to illuminate the area of operations.

b. Operations Requisites. Normally, aircraft can operate when—

(1) The ceiling permits safe flying above the highest terrain to be traversed.

(2) There is enough visibility for the aviator to see obstacles in time to avoid them when flying at reduced speeds.

(3) There is enough visibility for the aviator to recognize prominent landmarks.

(4) Radio control is available.

(5) There can be indicated, with electronic and visual navigation aids, the desired direction(s) and route(s) of movement for aircraft and the identity of selected points of the terrain; the identity and location of low-level extraction and airlanded delivery areas; emergency ground-to-air signals; directions and points of landing for helicopters; and the presence of obstacles to aircraft.

c. Advantages of Night Operations.

(1) Darkness partly conceals the aircraft from enemy visual observation.

(2) Maximum surprise and enemy confusion can be achieved.

(3) Normally, friendly forces can be rapidly reinforced.

(4) Continuous pressure can be exerted on the enemy.

(5) Hostile antiaircraft fire is not as effective at night.

d. Disadvantages of Night Operations. In night operations, the need for more elaborate control measures than during daylight and the need for caution on the part of the aviators and troops impede operations, and locating landing areas and zones is more difficult. However, with proper equipment, constant training, and thorough indoctrination in techniques of night operations, these disadvantages may be overcome. The following factors must be considered:

(1) More time is required to perform tasks at night.

(2) Pathfinders support should be made available to provide the required guidance and control necessary for safe and efficient night operations.

(3) Landing areas used at night should be larger than those used in daylight.

(4) Navigation is more difficult at night than in daylight.

(5) Areas heavy with dust must be avoided in night operations.

(6) Artificial illumination facilities should be planned for and immediately responsive to the commander in case their use is necessary for accomplishment of the mission.

(7) Illumination may be used—

(*a*) For reconnaissance of the approaches to areas occupied by friendly troops.

(*b*) On enemy targets for armed helicopters and friendly support fires.

(*c*) On the landing zone.

(*d*) For deception or diversion.

(*e*) The use of illumination must be coordinated between aviation and ground unit commanders. Unless it is coordinated, it may destroy pilots' night vision or reveal friendly forces to the enemy.

(8) Formation flight is more difficult, and formations are more dispersed.

2–10. Aircraft Availability

a. Aircraft availability is an overriding consideration in airmobile operations. It is directly influenced by the adequacy and efficiency of maintenance and supply activities, and aircraft utilization/scheduling procedures, as well as by the distance of support units from the operating units. Given time and support to prepare for a particular operation, units generally can approach 100-percent availability for short periods.

b. Both the support and supported commanders should be aware that everyday use over an extended period of all available aircraft will result in a reduced mission availability rate for future operations. AR 710–12 may be used as a guide to establish goals for aircraft availability rates and permit units to perform scheduled and unscheduled maintenance. During periods of sustained operations, airplanes normally can maintain a greater percentage of aircraft availability for longer periods than helicopters. In the course of sustained operations, aircraft maintenance must be carefully considered and programed so that heavy flying requirements will not cause a continual decrease in aircraft availability.

c. Supported unit commanders and logistical planners can conserve the use of available aircraft by—

(1) Establishing acceptable aircraft availability rates prior to operational commitment.

(2) Establishing forward refueling/rearming areas to eliminate flying hours expended for refueling/rearming purposes.

(3) Utilizing surface means of transportation for logistical support whenever possible.

(4) Timely and coordinated logistical planning to insure full utilization of all aircraft sorties and avoid duplication of effort.

2–11. The Airmobile Division

The aircraft organic to the airmobile division provide simultaneous lift for one-third of the division's combat organization. Additionally, airmobile division organic aircraft provide lift for combat and combat support and reserves, and they provide an air line of communication (ALOC) for rapid supply and resupply. In addition, the immediate availability of aircraft and the detailed standardization of airmobile operations techniques permit a more immediate responsiveness to aviation support requirements.

CHAPTER 3

AIRMOBILE OPERATIONS

Section I. GENERAL

3–1. General

This chapter contains guidance for planning, preparing, and executing an airmobile operation.

3–2. Planning

a. Planning for an airmobile operation is characterized by speed, timing, clarity, and accuracy. Plans should be as detailed as time permits. Time will not be available usually nor is it generally necessary to produce elaborate and detailed plans for the movement of a force of company size or smaller. Planning and preparation time is materially reduced by adequate training and maintaining forces in a state of operational and logistical readiness, and by the development of SOP (app G). Units should rehearse SOP as often as necessary.

b. Strict security during planning and rapidity of the initial movement reduces the vulnerability of airmobile operations and enhances the opportunity for surprise.

Section II. SUPPORT REQUIREMENTS

3–3. General

In addition to aircraft support, fire support, and other tactical considerations, airmobile operation planning requires detailed consideration of—

a. Communications.
b. Supply procedures.
c. Evacuation and hospitalization.
d. Administrative considerations.
e. Ground transportation.
f. Air crash rescue support.

3–4. Communications

Communication requirements must be considered at the beginning of the planning phase. Plans and orders should include a selection of communication equipment and personnel to accompany the assault and rear echelons. Particular attention is given to the transportability of equipment and the dispersal of key personnel when preparing for loading and air movement. To avoid enemy detection or overburdening radio nets, communication may have to be restricted or listening silence imposed during early stages of the operation.

a. Communication for Control of an Airmobile Task Force. Control of movement is necessary to provide precise timing and execution of the operation. Separate radio frequencies, within the air/ground frequency spectrum, are required for each supporting and supported element of the airmobile task force. Plans are prepared to insure positive communication between command and control personnel and the following:

(1) Loading area.
(2) Objective area.
(3) Army aviation unit.
(4) Aircraft in flight.
(5) Fire support coordinator and air liaison officer.
(6) Airborne command post.

b. Communication in the Objective Area.

(1) For effective control of ground operations, positive communication must be

established prior to commencement of the airmobile operation and maintained continuously thereafter (fig. 3–1). This is particularly important as the airmobile elements arrive in the combat area. Initially, the airborne command post and the pathfinders can provide an effective means of communication. When a helicopter is not equipped with command and control communications, an aircraft that is equipped to accommodate ground radio equipment should be requested. Enough communication personnel and equipment are moved into the objective area early in the assault to insure timely installation of vital communication for the command post. In case of destruction or malfunction of communication systems, alternate plans must be implemented. Organic or direct support aircraft may be used to relay messages or as aerial messengers. Early reliable and continuous communication with fire support elements is vital to the success of the operation.

(2) In each operation, provision should be made to equip specified direct support aircraft with radio sets for retransmission of both SSB (AM) and FM voice radio messages from the objective area to the airborne command post or loading area. Such radio retransmission may be automatic if appropriate equipment is available, or it may be manual and necessitate retransmission by the radio operator on the aircraft. Designation of specific aircraft for required radio retransmissions will insure a higher degree of positive command and control of the airmobile operation.

(3) The following communication is necessary for effective command control:

(*a*) Immediate establishment of lift frequencies, command and fire control nets.

(*b*) With supporting artillery, tactical air, naval forces, and armed helicopter elements.

(*c*) With Army aviation units concerned with reconnaissance, build-up, air supply, aeromedical evacuation, air crash research support, and aerial fire support.

(*d*) With airfields and bases in friendly territory.

(*e*) With other forces (including link-up forces) with common or coordinated missions.

(*f*) With higher headquarters.

(*g*) With pathfinder or other ground control elements in pickup zones and landing zones.

3–5. Supply Procedures

a. The quantity and types of supplies and equipment carried are dictated by—

(1) The initial combat requirements for prestocked fuel, ammunition, and other items.

(2) The availability and capacity of aircraft.

(3) The projected time of landing, linkup, or withdrawal, or the time that resupply can be delivered.

(4) The anticipated weather.

(5) Enemy capabilities.

(6) Distance between pickup zones and landing zones.

(7) The type unit and mission.

b. Each soldier and each unit of the assault force should carry enough supplies to sustain themselves until the expected time of resupply. Adequate supplies should be maintained in the objective area at all times to replace expended assault supplies needed to sustain the force until it can be resupplied. Aircraft fuel and ammunition should be prestocked in forward secured areas to minimize turnaround time. Consideration should be given to the use of intermediate loading areas to reduce turnaround time. Supplies, fuel, and equipment can

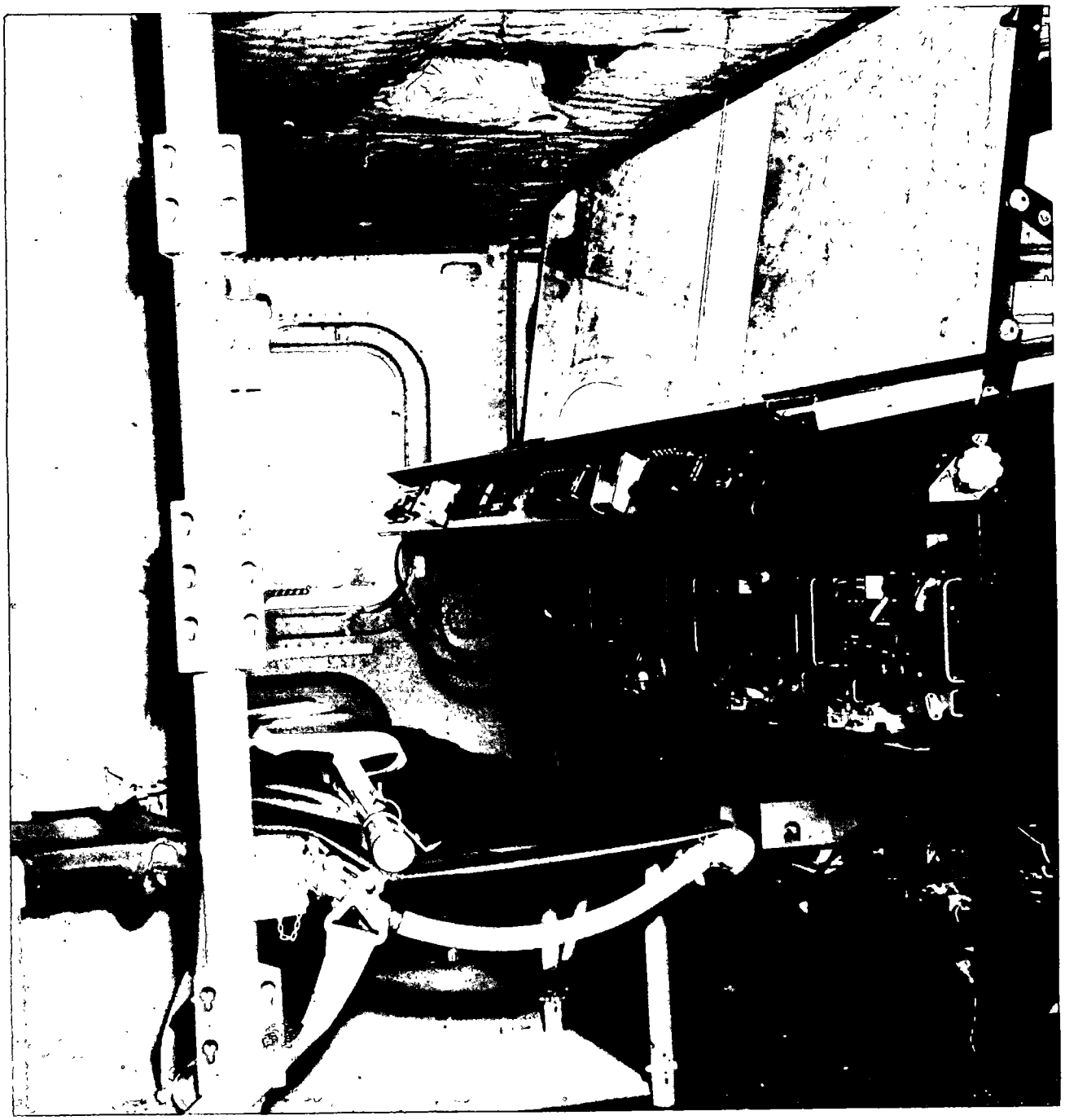


Figure 3–1. Airborne command post with a communication and mapboard console.

be brought up to an intermediate loading area by medium helicopters and USAF transport aircraft to be lifted into the objective area or landing zones by troop lift helicopters.

c. Support aircraft that are downed must be reported promptly to the airmobile task force commander. Considerable reliance is placed on an ALOC, and any sudden reduction of supplies

may have a direct impact on the committed force.

d. An airmobile operation affects classes of supply as follows:

(1) *Class I.* Under normal conditions, the assault echelon carries sufficient rations to last until the expected time of resupply.

(2) *Class II.* The assault echelon carries only minimum class II items (clothing, organizational equipment, vehicles). Additional requirements are included in resupply.

(3) *Class III.* Vehicle fuel tanks and additional fuel cans should be no more than three-fourths full. Additional fuel and lubricants are carried in each vehicle. Resupply includes fuel and lubricants. (See TM 38–250 and 57–210.)

(4) *Class IV.* Particular attention must be given to class IV supplies used to prepare landing zones and landing strips.

(5) *Class V.* The amounts and types of class V assault supply vary with each operation. An ammunition load is determined by the degree of opposition expected during and after the landing, the number and type of weapons with the assault echelon and requirements for bulk allotment items, the time that resupply can be expected, and experience factors. Resupply includes all types of class V supply in sufficient quantities to allow continuity of combat operations. Changes may be required in the amounts and types of ammunition resupply planned for delivery in the objective area as a result of the tactical situation. Whenever possible, ammunition and rations may be delivered by helicopter direct to company or smaller units (fig. 3–2).

(6) *Miscellaneous.*

(*a*) Water supply points are designated before an airmobile operation.

(*b*) Salvage and excess supplies are evacuated through normal supply channels after the rear echelon (para 3–10) has arrived in the objective area.

(*c*) Captured enemy materiel is used within the limitations prescribed by unit SOP and policy established by the commander.

(*d*) Whenever possible, supplies and equipment should be delivered by slingload to minimize exposure time of helicopter to ground fire.

(*e*) Support weapons and ammunition should be carried in the same load.

(*f*) Supplies may be free dropped from helicopters into forward areas.

(*g*) Aircraft should be used to evacuate captured enemy equipment, prisoners of war, casualties (both friendly and enemy), disabled equipment, or any battlefield refuse which could be used by the enemy (e.g., artillery brass). and surplus supplies to avoid empty return flights.

(*h*) Whenever possible a supply base containing all classes of supply should be established within a 40-kilometer radius of the farthest combat unit before or just after the operation begins.

3–6. Evacuation and Hospitalization

a. Medical elements, with liaison personnel from supporting medical units, are moved into the objective area to establish a system of emergency treatment and evacuation.

b. Aeromedical evacuation is begun as early as possible.

c. Medical holding facilities may be established at suitable landing sites.

d. Organic medical facilities may require augmentation in order to care for nontransportable casualties in large-scale operations.

e. Provide air crash rescue support as required.

Figure 3–2. Resupply of forward ground elements by helicopter.

3–7. Administrative Considerations

a. Personnel.

(1) *Strength messages.* Each unit in the objective area submits a strength message as soon as possible to higher headquarters, noting any personnel losses incurred during the flight from the loading area to the objective area. After this initial strength report, unit SOP are followed in submitting feeder-type morning reports, the personnel daily summary, and daily strength messages.

(2) *Casualty report.* Casualty reports are prepared as soon as possible and forwarded to the controlling headquarters.

b. Prisoners of War and Captured Materiel. Prisoners of war and captured documents and equipment are evacuated from the objective area as rapidly as possible. Helicopters returning empty from the objective may be diverted to evacuate prisoners and materiel on back haul. If this is not practical, helicopters should be requested specifically for prisoner and materiel evacuation. Medical evacuation helicopters may be used to evacuate wounded prisoners of war.

c. Graves Registration. Graves registration units normally locate at the rear base of the airmobile task force. The casualties are evacuated directly from the forward elements by use of backhaul transportation or by requesting helicopters as needed for evacuation. This avoids hampering the mobility of the forward elements.

d. Miscellaneous. Airmobile operations require, in addition to normal detailed logistical planning, consideration of the following special factors:

(1) Time between the assault landing and linkup or displacement.

(2) Number and type of aircraft available for supply purposes.

(3) Construction and demolition tasks to be performed in the objective area. Consideration should be given to including engineer personnel and equipment in the earliest phases of the landing in order to improve the landing zone for subsequent combat support and combat service support missions.

(4) Tactical loading requirements for personnel and equipment.

(5) Downed-aircraft recovery procedures and recovery aircraft to be used (fig. 3–3).

(6) Timing and arrival on the landing zone of the logistical support aircraft to avoid interference with the combat operation, with the additional consideration of continuous and timely supply and resupply.

3–8. Ground Transportation

Surface means of transportation are limited in airmobile operations. Available motor transport may be pooled along with usable enemy military and civilian motor vehicles found within the objective area.

Section III. PLANNING

3–9. General

a. Commanders must be alert for opportunities that arise or which they may create for the employment of an airmobile force to influence materially the outcome of a ground engagement. Planning includes a constant assessment of the tactical situation by the commander and staff. They determine whether the employment of airmobile forces is within the capability of the unit and whether such forces would materially influence the ground battle.

b. In airmobile operations, the planning sequence must be in reverse chronological order. The plan is formulated from mission accomplishment back through organization of the landing zone to operations at the pickup zone (para 3–12.) The following factors are considered in planning:

(1) Mission.

(2) Organization for combat and ground unit formations required to seize the objective.

(3) Current tactical situation.

(4) Forces and aircraft available.

(5) Enemy situation and capabilities.

(6) Terrain and weather.

(7) Combat support available.

(8) Logistical support required.

(9) Reconnaissance and surveillance required.

(10) Air defense support available.

(11) Airborne command post and radio retransmission (relaying) requirements.

c. Subordinate commands, down to and including companies, may be directed to conduct all or part of the more detailed planning once the mission, objective, and size of the force have been established.

3–10. Echelonment

Combat elements of a force which is to participate in an airmobile operation are normally organized into echelons:

Figure 3–3. Recovery of downed aircraft by CH–54A.

a. Assault Echelon. This element consists of those forces and their equipment that are air-landed in the objective area to engage in ground combat. It may require one or more lifts, depending on its size and the number and type of aircraft available.

b. Resupply or Followup Echelon. This element consists of combat support and combat service support to sustain the assault echelon until extraction, withdrawal, or linkup occurs.

c. Rear Echelon. This element consists of the remainder of the force; that is, forces and equipment not immediately needed in the objective area, such as administrative personnel and equipment and items that cannot be transported in available aircraft. The rear echelon either remains in a rear area until termination of an operation or accompanies the ground linkup force.

3–11. General Considerations

Plans for an airmobile operation must be accurate, detailed, and flexible. All command-

ers and leaders must be prepared to overcome unforeseen difficulties and to exploit opportunities that may arise during the operation. To maintain flexibility, the task force S3—

a. Insures that the success of the operation does not depend entirely on the arrival of any one air serial or tactical unit.

b. Insures validity of landing and assembly SOP.

c. Plans for the required number of lifts.

d. Uses landmarks that are easy to identify from the air.

e. Insures the selection of suitable landing zones which will allow the ground force to be landed as near as possible to the desired location and in the desired formation. The aviation mission commander and airmobile task force commander mutually select the landing zone locations.

f. Plans for the selection of multiple landing release points to provide flexibility during the assault and followup lifts. Normally, these release points are recommended by the aviation liaison officer.

g. Insures the selection of multiple flight routes from the loading area or pickup zones to the landing release point. Normally, these routes are selected by the airmobile task force commander based on the recommendations of the aviation mission commander, and the ground tactical plan.

h. Plans for the flight time from the pickup zones to the landing zones, and makes allowances for operational delays in takeoffs and landings.

i. Maintains tactical integrity of both lifted units and aviation units in loading plans whenever possible.

j. Prepares a plan for the disposition of troops and equipment at pickup zones.

k. Insures that planning includes an integrated staff that represents the forces and support available.

l. Incorporates the capability of change in the event of a shortage of aircraft or sudden insertion of a high-priority unit in the air movement plan.

m. Insures that all plans are coordinated with appropriate agencies and units, including air defense, artillery, tactical air, armed helicopter and those units equipped with mortars and Redeye weapons.

n. Considers use of chemical agents, to include screening smoke and casualty, incapacitating, and riot-control agents in appropriate situations in support of landing operations. The weather and tactical situation must be favorable for their employment. (See also FM 21–40 and TM 3–215.)

o. Plans for continuous and complementary fire support by all means available, to include plans for aerial artillery and the positioning of artillery and counterbattery and/or countermortar radar by helicopter in secured locations suitable to support the mission. Positioning of these radars should consider their use for adjustment of artillery fires and location of friendly units.

p. Plans for supply and resupply in as much detail as is practicable.

q. Insures that maximum advantage is taken of all available space in all aircraft.

r. Develops positive and alternate communication plans to insure that communication is continuous and well coordinated between all elements of the airmobile force; these plans should specify the selection of communication personnel and equipment to accompany assault and rear echelons.

s. Prepares a plan for the withdrawal or extraction (para 4–5*d*) of forces under fire upon termination of the operation.

t. Prepares alternate plans.

3–12. Planning Sequence

a. Planning for an airmobile operation is developed through the following sequence:

(1) Ground tactical plan, to include plans for withdrawal or extraction, reorganization, and redeployment.

(2) Landing plan, to include timing and phasing of troops and equipment based on the ground tactical plan and preplanned fire support.

(3) Air movement plan, based on the landing plan.

(4) Loading plan, based on the air movement plan.

(5) Staging plan, based on the loading and air movement plans.

b. The plans listed in (1) through (5) above, are normally included as annexes to one operation order. Linkup and extraction plans are also included when applicable. Normally, operations will be conducted by unit SOP. The plans are all closely related and developed concurrently. Combat service support planning is continued throughout the planning sequence.

c. Plans should be rehearsed when possible.

d. The staging plan and air movement plan discussion is minimized in the planning sequence because details of staging and air movement are contained in unit SOP, thereby making it only necessary to designate departure areas close to the units to be lifted.

3–13. Command and Staff Reconnaissance

a. In planning for an airmobile operation, commanders and staffs conduct as much reconnaissance as time permits. Because an airmobile operation relies heavily on intelligence information, the verification of intelligence through aerial reconnaissance is an overriding consideration. Normally, the airmobile task force commander, the aviation mission commander, the fire support coordinator, the air liaison officer, staff planners, and pathfinders (if used), conduct an aerial reconnaissance of the planned flight routes, landing site and zone(s), and objective areas, if the situation permits. The advantages in conducting a combined reconnaissance are twofold—the commander insures that all parties examine the same terrain; and operational traffic is reduced. If time or the situation does not permit thorough reconnaissance, a hasty reconnaissance may be made by this group as it precedes the initial lift. Directions of landing, obstacle avoidance, enemy fire and fire support neutralization, and changes to alternate routes and landing sites and zones may be directed from the airmobile command post. In some cases, the reconnaissance may be performed by escort or air cavalry aircraft that precede the airmobile force en route. The operation must not be compromised through excessive or careless reconnaissance of the operational area. Pathfinders or long-range patrols may infiltrate by air or on foot to proposed landing zones long before the operation to determine presence of the enemy, landing zone, ambush sites, and the condition of the surface. If contact is made, the patrols may be helpful in directing close air support and armed helicopter attack, as well as direct the landing troop lift helicopters. If contact is not made and the landing zone and the surrounding area are clear of enemy forces, the patrol can advise against preparatory fires which may alert an otherwise unsuspecting enemy. Information obtained during the aerial reconnaissance is similar to that obtained during ground reconnaissance; however, stress is placed on the—

(1) Suitability of landing zones and drop zones.

(2) Control points (easily recognizable terrain features).

(3) Location of assembly areas (if required).

(4) Obstacles in the objective area.

(5) Flight routes and air corridors for approach and return flights.

(6) Enemy forces in proximity to landing zones and objective areas.

b. Emphasis is placed on reconnoitering and selecting airmobile force helicopter routes that provide for nap-of-the-earth flight, easily identifiable terrain navigation features, and avoidance of known and suspected enemy dispositions capable of seriously affecting the operation. The selection of start points (SP), air control points (ACP), communications checkpoint (CCP), and release points (RP) may be made during the reconnaissance, if not selected

earlier from a map. Approach paths from RP(s) to LZ(s) should be varied to minimize canalization of the helicopters to avoid concentrated fires of the opposing force. This may be accomplished by the capability of the helicopter to land or depart the LZ from many directions. Altitudes for the flight above concentrated bursts of enemy ground fire may be determined during the reconnaissance. These may be varied from contour flying to levels that avoid enemy small-arms fire. The approach path(s) to the landing zone(s) may be determined and visual or aerial signals planned. It is advisable to avoid obvious landing zones; these may often be protected by helicopter obstacles or enemy ambush forces. Steep defiles or canyons are avoided, especially when there is an appreciable amount of surface wind, and when momentary loss of aircraft control can occur from downdrafts. Heavily forested and swampy areas generally provide good routes for avoiding ground fires, but it is difficult to accurately navigate over such areas. Use of the airborne command post or light observation aircraft and pathfinders to vector contour-flying aircraft is recommended if such use will not compromise operational plans, and if the enemy air defense capability permits.

c. Terminal guidance requirements and locations should be considered during the reconnaissance, if not selected earlier from a map.

d. To deny the enemy knowledge of landing zones, the airmobile task force commander may plan to prestrike other possible landing zones, feign landing on one, and then move quickly to the primary landing zone. Plans should also be made to insure that armed helicopters strike tree lines around the landing zone immediately prior to landing.

e. During the reconnaissance, plans are developed to insure continuous and complementary fire support for the airmobile task force. In some instances, it may be desirable to plan overlapping fire support. Warnings of support fires may be broadcast over radio nets to aircraft.

f. Plans made during the reconnaissance may include the use of pathfinder elements or ATC personnel to control and direct aircraft.

g. Plans may be made to insure that the airmobile task force commander, accompanied by the aviation mission commander, the air liaison officer, the fire support coordinator, and other key members of ground unit, reconnoiters the landing site immediately prior to the actual landing and remains on station over the landing zone(s) to further vector the aircraft as well as direct the operation. Normally, this will be accomplished through the use of an airborne command post.

h. Plans should be made to strike areas around landing zones and approaches to landing zones to prevent the enemy from reinforcing and to harass his withdrawal.

i. If reconnaissance should indicate little or no enemy activity, plans may be made to conduct an airmobile operation without preparatory fires. In some instances, preparatory fires alert the enemy to an impending operation and allow him time to react. Plans should be made for all support fires to be on call once the initial landings have been made.

3-14. Crew Fatigue

Fatigue among aircraft crews is a factor which should always be considered by all commanders. Commanders should be aware of the possible consequences of continuous long periods of flight operations in terms of probable aircraft accidents which result in damaged equipment, personnel injuries, and even death.

3-15. Atmospheric Conditions

a. The ground commander should understand the effects of atmospheric conditions on his lift support and, as a consequence, on his airmobile operations. Density altitude, the one factor which will probably most frequently affect operations, is a term used to equate a given air density to an altitude above sea level on a standard day (59° F. at sea level). It represents the ability of the air, at a particular time and place, to support the weight of an aircraft with a given amount of available

power. Density altitude is a function of temperature, barometric pressure, humidity, and elevation above sea level. Temperature, and elevation have the most effect on density altitude. An increase in either or both of these factors results in a higher density altitude condition. As the density altitude increases, the lifting capability of the aircraft decreases. What this represents, to the commander, is that as temperature increases he will either have a lesser lift capability or he will require more aircraft for a given mission.

b. Wind frequently will affect airmobile operations. Direction and velocity are wind factors which must be considered. An aircraft taking off or landing into the wind requires less forward motion over the ground than one taking off or landing under no-wind conditions. A headwind, as described, will increase the lift capability of an aircraft to a certain extent which increases with wind velocity. A downwind condition (taking off or landing with the wind) has exactly the opposite effect of a headwind. Larger areas are required for takeoff and landing, and lift capability is reduced. As wind velocity increases, proportionately larger areas are needed for downwind operations, and lift decreases. When wind is a factor to be considered in planning for an airmobile operation, takeoffs and landings should be planned into the wind when possible. If that is not tactically feasible, then loads should be reduced accordingly or larger pickup and landing zones should be used. Wind will also affect the time en route for the aircraft: headwinds will increase the time, and tailwinds will reduce it. When timing is critical, adjustments in takeoff time and in specified airspeeds will have to be made to compensate for wind.

c. Visibility is a factor only when it is very restricted. Helicopters can operate under adverse visibility conditions if aviators are well trained, and if caution and sound judgment are used. Reduced visibility makes navigation more difficult, reduces the agility of formations, and increases the possibility of mid-air collisions. When visibility decreases below normal safe limits, the aviation mission commander will advise the airmobile task force commander on whether or not to cancel airmobile operations. He will advise the airmobile task force commander after considering several factors such as terrain, density of air traffic in the area, state of training of his aviators, and the urgency of the mission. The best source of weather information is a pilot report made by a pilot in flight in the area of interest. Weather reconnaissance flight should be made by the aviation unit if weather is marginal.

Section IV. RECONNAISSANCE, SURVEILLANCE, INTELLIGENCE, AND SECURITY

3–16. General

a. Since airmobile operations are conducted in furtherance of the ground effort, the current intelligence situation and intelligence estimate relating to the ground effort are essential to planning. Certain intelligence requirements must be emphasized—terrain analysis must cover a large area; weather is of critical importance; and enemy air defense units must be accurately located. Additional considerations are—

(1) During the planning phase, intelligence analysis is primarily concerned with assessing enemy capabilities and vulnerabilities in the general areas under consideration for airmobile attack. Once the objectives have been selected, area surveillance (consistent with the security plan) must be maintained to insure timely detection of any enemy movement or changes which could jeopardize success of the mission.

(2) As a general rule, responsibility for collection and assessment of intelligence required for overall planning is retained by commanders at echelons above the assault force. For the de-

velopment of the ground tactical plan, the assault commanders make their intelligence requirements known to higher headquarters and make maximum use of available intelligence in planning fire support and maneuver within the objective area.

b. Counterintelligence measures are essential to successful airmobile operations. This fact should be considered in all phases of planning for an execution of airmobile and/or airlanded operations. Information on the location, movement, and massing of aircraft, for example, is always of special interest to the enemy. The intelligence officer at each echelon assists in the development of the unit tactical cover-and-deception plan, and insures that unit counterintelligence measures support this plan.

c. Aircraft are most vulnerable while on the ground, and detection of loading areas and activities are most likely to compromise the operation. Therefore, aircraft should arrive at the loading area at the last possible moment for the initial lift and remain on the ground the least time commensurate with loading requirements.

3–17. Weather and Terrain

a. Weather. Weather minimums must be established early in the planning to prescribe the least acceptable weather in which the commander will permit the operation to be mounted. Weather minimums are established based on the type aircraft employed, navigation aids available, terrain along the flight routes, and the time of the operation.

b. Terrain. Analysis of the terrain for an airmobile operation must include careful consideration of potential landing zones and assembly areas in the objective area, avenues of approach from landing sites to the objective, choice of landmarks to help define flight routes, and vegetation and landforms to provide concealment during the air movement. Emergency landing sites along the route to the objective must also be considered. Obstacles to airlanding and tactical movement as well as avenues of approach available for enemy reinforcements or counterattack require special attention in the terrain analysis. Terrain information regarding specific landing zones is required by the aviation mission commander, particularly regarding slope, vegetation, and obstacles.

3–18. Enemy

The intelligence requirements with respect to the enemy, in addition to the normal requirements, include a detailed consideration of his air defense installations, tactical air capability, armor capability, airmobility, and armed aircraft and air cavalry capability, and, of primary importance, information pertaining to enemy disposition in and around the landing zone(s).

3–19. Aerial Reconnaissance and Aerial Surveillance

a. General.

(1) *Aerial reconnaissance* is a mission undertaken to obtain, by visual aerial observation or other airborne detection means, information about the activities and resources of an enemy or potential enemy; or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.

(2) *Aerial surveillance* is a continuous (marginal weather, day and night) systematic watch over the air, surface, and subsurface areas by airborne visual, photographic, electronic, or other sensory means for intelligence purposes.

(3) Aerial reconnaissance and surveillance units, because of their information collection and target acquisition capabilities, make important contributions to the overall intelligence collection plan a commander must have in order to accomplish his combat mission. They are supplements to, not substitutes for, the normal collection means and agencies available to the ground commander.

b. Missions and Capabilities. Army aviation units may be assigned missions to provide battlefield reconnaissance, surveillance, and target acquisition. In the performance of these missions, they provide general and direct support to ground units by use of visual, aerial infrared, image intensification, radar, and photographic sensory devices to extend and supplement ground observation in the fulfillment of intelligence requirements.

(1) Air cavalry units are generally used to perform reconnaissance and provide security for designated major combat elements, and to engage in combat as economy-of-force units. When employed in a primary role of reconnaissance and security, they collect and report information of intelligence value over wide fronts and to extended depths. This information adds to the security of the front, flanks, and rear of other less mobile maneuver elements of the protected force.

(2) In addition to the capabilities provided by organic air cavalry elements supporting the ground commander, there are other specialized aerial surveillance and reconnaissance organizations available to perform information-collecting missions in support of combat operations. These organizations may be either organic army elements under the operational control of the command G2 Air, or other service flying units, principally US Air Force, that provide mission support in response to the needs of the field army and its subordinate commands. These specialized organizations have the capability of performing visual, photographic and electronic sensor missions, such as side-looking air borne radar (SLAR) and infrared (IR), based on the needs of the ground commander. Requests for aerial surveillance and reconnaissance support that are beyond the capabilities of the ground commander's organic or direct support aviation units to meet, are directed through command channels to the appropriate G2 Air at the level where either an organic army unit can be directed to perform the mission, or other service support can be scheduled to accomplish the requirement. The results of these missions are furnished to the requestor as soon as the mission is completed. For a more detailed discussion of the total aerial surveillance and reconnaissance capabilities available to the ground commander, see FM 30–5, FM 30–20, and FM 30–20–1 (TEST).

(3) Airplanes and helicopters have the capability of providing visual reconnaissance of routes, zones, areas, and selected terrain features. They can locate, identify, and confirm targets, and conduct poststrike analysis. In addition, when appropriately equipped, aircraft have the surveillance capability of providing photographic, SLAR, and infrared coverage.

(*a*) An aircraft equipped with SLAR is normally flown on a flightpath parallel to and over friendly lines and can detect moving and stationary targets to either side of the aircraft from 3 to 90 kilometers. SLAR emits radar pulses that bounce off objects and terrain and cause a return signal that is detected by the radar receiver. This signal is converted to a visual presentation and transferred to film which is developed in flight by a high-speed processor. In minutes, the film rolls across a viewer for viewing by the sensor operator who can report target locations by radio to tactical air, artillery, or other fire support elements. SLAR aircraft equipped with a data link transmitter can transmit return signals to a ground receiver station where it is simultaneously recorded on film for

viewing. The film used in both the airborne and ground stations is similar to ordinary camera film negatives. Rivers and villages appear on the film in outline, and vegetation appears as shaded areas. Moving objects appear as black dots. From the size of the dots and other indications, a trained imagery interpreter can estimate the size of vehicles and the general nature of a target. SLAR is a near all-weather system, limited only by the weather limitations of the aircraft.

(*b*) The aerial infared system is employed on day or night missions with tactics and techniques adapted to the type mission being flown. Infrared is particularly effective at night and for surveillance of camouflaged or concealed positions. Infrared is often employed to obtain additional information on activities noted by the visual or SLAR aircraft. Infrared picks up heat waves generated by objects hotter than their surroundings. These emissions are converted into a visual presentation and are printed on a roll of film. Heat-producing sources are shown as points of light. Infrared aircraft have the same capability for on-board display and transmission to ground sensor terminals of the emissions as the SLAR system does.

(3) Image-intensification (II) devices employed on air vehicles are particularly effective at night, when sufficient natural or artificial light conditions are present, for surveillance of relatively open terrain. Helicopters temporarily configured with these devices are often employed in conjunction with armed helicopters which engage the targets detected by the II devices. If artificial light sources, such as aircraft flares, are used, they should be offset a sufficient distance from the surveillance helicopters to make it appear as if they are not part of the same operation.

c. Limitations. Aerial reconnaissance and surveillance means are restricted by adverse weather, unusually dark nights, and poor visibility. Nights with an overcast sky are particularly hazardous for operation of observation-type helicopters which are not equipped with instrumentation. Without a horizon, orientation is easily lost and vertigo may develop. Large helicopters and fixed-wing aircraft are usually better instrumented to assist the aviator in keeping his orientation, and vertigo is less likely. The SLAR may be employed under conditions of marginal weather and poor visibility, but not under severe weather conditions. The infrared is not an all-weather system, and for satisfactory results with infrared detectors, or cameras, the aircraft must fly below cloud levels in the target area.

(1) Visual reconnaissance is limited by the quality and availability of observers, the quality of illumination for night observation, the quality and availability of light-intensification devices, and the quality of visibility due to atmospheric conditions, e.g., haze, ground fog, rain. The aviator and observer are a team. One is of little value without the other. Information collected by this team is directly proportional to the experience of both the aviator and observer.

(2) If an intelligence-trained briefing/debriefing officer is available to formally brief and debrief aviators and observers before and after each flight, the amount of information collected from the flights will be increased significantly. Much of the success of reconnaissance and surveillance efforts depends on the ability of, and the direction given by, this person.

d. Employment. The tactical unit integrity of reconnaissance/surveillance units is normally retained when they are employed. These units are organized to be subdivided into companies/troops, platoons, and sections. If they are fragmented and employed as individual aircraft, it is much like fragmenting an armor

or artillery unit to employ single tanks or single pieces of artillery with a consequent reduction in efficiency of unit operations.

(1) Aerial reconnaissance/surveillance aircraft organic to other units are employed at the discretion of the parent unit commander. These aircraft may be employed so they can be mutually supporting.

(2) Air cavalry units provide reconnaissance and security for designated major combat elements, engage in combat as economy-of-force units, and conduct offensive, defensive, or delaying operations as required. When used in reconnaissance/security roles, they are normally employed under the control of the air cavalry troop commander who develops an appropriate reconnaissance/security plan based on the mission he has received from, and as a supplement to, his commander's overall combat reconnaissance/security requirements that were established by his commander's mission.

(3) An airplane with SLAR can penetrate deep into enemy territory. Because the sensor can be employed from high altitudes, the aircraft may be sent into enemy areas for specific missions. Care must be taken to protect it from enemy aircraft and air defense weapons to which it is particularly vulnerable because of its comparatively slow speed.

(4) An airplane with infrared is particularly effective at night. However, its sensor requires the aircraft to be operated at low altitudes in order to get satisfactory imagery. Infrared is often used to confirm targets that have already been located by visual, SLAR and other means.

(5) For ease of reconnaissance, an area is usually divided into easily identifiable geographic areas which can be thoroughly covered in 2 hours of flying. These areas are numbered or lettered for identification. The same aviator and observer fly in the same area on a daily basis so that they become familiar with the patterns of life in the area and are able to detect deviations from the normal patterns (FM 30–20).

(6) The person responsible for briefing and debriefing aviators and observers should maintain a record on all sightings (FM 1–80 and FM 30–20). This should include, but need not be limited to, times and dates of sightings, target description, and required diagrams which should be plotted on a map and/or necessary overlays. Attempts should be made to reduce sightings to targets, and additional reconnaissance/surveillance flights should be planned to further develop these targets.

(7) Team-flying techniques of reconnaissance are quite important. By reconnoitering with teams of aircraft, it is possible to cover larger areas more quickly and thoroughly. Assigning different types of aircraft the same reconnaissance mission is also effective. For example, an airplane may be teamed with two armed helicopters. The airplane can fly high and give area cover while the armed helicopters perform detailed low-level reconnaissance. If the armed helicopters make an intelligence sighting or flush the enemy, the airplane can keep track of the target while the helicopters are turning for a better look or to engage the target.

e. Techniques. Reconnaissance/surveillance missions should not establish detectable patterns. The time of day and direction of flight should be varied to prevent the enemy from ceasing activity during these times and moving only at times when aircraft are known not to fly over the areas. This is not always possible. For example, some targets (especially those hidden in tree lines) can be seen only when the sun is at a low angle. It is not pos-

sible to greatly vary observation times for these targets and areas. A detailed discussion on techniques of visual aerial surveillance and reconnaissance operations is contained in FM 30–20–1 (TEST).

3–20. Briefings and Debriefings

a. Intelligence briefings should be conducted in detail and should include all available information on weather, terrain, and the enemy. The intelligence information should be disseminated to the lowest level. When feasible, key personnel taking part in the airmobile operation should be given an opportunity to study photographs and maps of the objective area and surrounding terrain. Each individual should thoroughly understand the instructions pertaining to evasion and escape and the methods of marking pickup sites for evacuating personnel from downed aircraft. Security instructions are an important part of these briefings.

b. Aircraft crews should be familiar with procedures to enter appropriate radio nets for making spot reports to ground or aviation units in whose area they are operating. If reporting channels do not exist, the aviation unit responsible for the area will establish provisions for reporting spot intelligence.

c. Some intelligence may be of the type that should be passed through the aviation unit intelligence channels. A typical example of a reporting procedure would be to provide intelligence information that originates with the aviation crew and is passed to the aviation detachment or company headquarters, to the aviation battalion S2, to the aviation group S2, and then to the aviation brigade S2. When appropriate, it should be passed to aviation units located in the same or adjacent areas or their subordinate or higher headquarters. Information must be passed through both aviation and ground unit channels. The decision on which channel to use is made by the unit intelligence officer.

d. Aviation unit personnel should be indoctrinated to remain aware that all flights over the area of operations may afford opportunities to produce some piece of information that can be converted into vital intelligence. A procedure that may be used with effective results to produce this information is to establish an essential elements of information (EEI) file in the aviation unit's flight operations. Such a file may include not only the EEI, but also the frequencies and call signs of the local spot report intelligence plans. Unit aviators should be required to check this file prior to a flight, and briefings and debriefings should be given covering these EEI prior to and following the flight.

3–21. Security

Security of airmobile operations plans is of the utmost importance, and necessary security measures must be enforced to insure that plans are not compromised and thereby nullify the inherent advantages of an airmobile operation.

a. Communication security must be exercised in the planning and buildup phases of an operation to prevent enemy intelligence personnel from gaining information through traffic analysis. A buildup in message traffic is just as revealing as a buildup in aircraft traffic.

b. During the operation, with participating units depending almost entirely on radio communication, care must be taken to avoid transmitting information over the radio which could be used by the enemy to materially affect the operation. Communication security training is a continuing requirement in this regard.

Section V. GROUND TACTICAL PLAN

3–22. General

The ground tactical plan includes the assault plan to seize objectives, and plans for defense, linkup, withdrawal, subsequent offensive operations, and displacement, as appropriate. When practical, assault and defense plans are prepared concurrently and include a scheme of maneuver and fire support plan. Alternate plans must also be prepared.

3–23. Ground Tactical Plan Considerations

The ground tactical plan is developed using approved principles of offensive, defensive, and retrograde operations. Because of the nature of an airborne operation, special consideration is given to—

a. Zones of Actions and Sectors. Zones of action and sectors assigned should include adequate landing zones. Desirably, the boundaries designated should apply to the assault and defense phase of the operation.

b. Objectives. Objectives include those areas whose early seizure is required for mission accomplishment.

c. Attack Positions. Attack positions may be selected by the ground force commander whenever the ground unit lands away from its objective and must conduct a conventional assault using an LD and a zone of action or direction of attack to seize its objective. The attack position is the last covered and concealed position short of the LD which is occupied by the ground unit to allow the final coordination and to deploy in the initial attack formation. In airmobile operations it will frequently coincide with the assembly area.

d. Security Forces. Because of the greatly expanded area of responsibility found in a perimeter-type formation of an airmobile operation, it is usually necessary to economize on the use of security forces. A single security echelon forward of the objective area defense line may be all that is practicable. The forces for the security echelon are normally provided by the forward elements. After the objectives are secured, units along the defense line of the objective area may be given responsibility for the security within their sectors. To enhance early security for the airmobile assault, security forces may land directly on their positions. Air cavalry or other armed aircraft, if available, may be employed to extend the range of security operations.

e. The Reserve. The reserve frequently is brought into the objective area in the assault echelon (but not necessarily on the initial lift) when a shuttle movement is required. The reserve can remain in the loading area with its aircraft prepared for movement to any point in the objective area, or it may be airborne on station. The reserve is usually small, primarily because simultaneous seizure of multiple objectives is normally required. Additional reserves may become available from other elements of the airmobile force as initial tasks are accomplished.

f. Eagle Flight. One or more eagle flights may be placed on an alert over a predesignated area or on ground alert to support other ground or airmobile operations to develop the situation or be employed as a reserve force. Flights may be employed separately on a daily basis to patrol assigned areas. By using decoy aircraft to draw fire, the flight will develop the situation and, if the enemy or insurgent force is small, the flight may land and defeat or neutralize the force. If the enemy force is strong, the flight may maintain contact and call on a reserve standby force of company or battalion strength to engage the enemy force.

(1) The eagle flight normally is composed of handpicked infantry elements (usually 30 to 40 troops) and accompanying troop lift and armed escort helicopters. Normally, the same infantry and helicopter units train and rehearse together. For operations, flights may be accompanied by an observation aircraft to vector the helicopters, provide radio relay, and act as a decoy. Airborne FAC also should be on call.

(2) Eagle flights have application in both nonnuclear and nuclear environments. They are particularly useful in providing the commander with highly mobile and responsive strike forces for operations against guerrilla forces in rear areas or against insurgent forces in an internal defense environment.

g. Fire Support. In airmobile operations, elements are expected to seize their initial objectives rapidly by independent action. Centralized control is established as soon as possible. Armed

helicopters will provide aerial escort and discrete, immediately responsive fire support to the air transported force during the loading and air movement. Aerial artillery or armed helicopters used in the aerial artillery direct fire mode, along with other nonorganic fire support (tactical air and/or naval gunfire) provide fires in the objective area during the landing and withdrawal phases of airmobile operations. For detailed discussion of fire support, see FM 6–20–2 and FM 7–20.

(1) *Fire support coordination line.* The fire support coordination line is a line established by the appropriate ground commander to insure coordination of fire not under his control but which may affect current tactical operations. Where possible, the fire support coordination line should follow well-defined terrain features. The establishment of the line is normally coordinated with the appropriate tactical air commander and other supporting elements.

(2) *Nuclear safety measures.* Various coordinating and limiting measures may be required for troop safety when nuclear weapons are used in support of ground operations. These measures should be related to well-defined terrain features, based on a careful analysis of the effects of the weapons being used. The FSCOORD is the principal advisor to the commander on the establishment of such measures. The designation and significance of all nuclear safety criteria are explained in appropriately distributed coordinating instructions, e.g., in paragraph 3 of the operation order. Some typical nuclear safety measures are—

(*a*) Lines of departure used to coordinate the exploitation of the effects of planned nuclear fires.

(*b*) Phase lines used to define limits of advance or withdrawal required to avoid unacceptable effects from planned nuclear fires.

(3) *Fire coordination line.* The fire coordination line is established to coordinate fires between the airmobile task force and linkup forces, or between two converging forces. It is used to regulate flat-trajectory and high-angle fires as well as airstrikes. Units do not fire beyond this line without coordination with the unit on the other side of the line. The fire coordination line should be easily identifiable on the ground and the area map.

(4) *No-fire line.* The no-fire line is a line short of which no artillery unit may fire without prior clearance from the direct support artillery which established it. The location of the no-fire line is established by the direct support artillery battalion commander in coordination with the supported unit commander. Each artillery echelon is kept informed of the location of, and changes to, the no-fire line. Division artillery consolidates and distributes this information to subordinate units, to artillery reinforcing the division artillery, to adjacent division artilleries, and the corps artillery headquarters. Corps artillery headquarter consolidates the no-fire lines and reports their locations to corps artillery units, to the artillery of the divisions of the corps, and to adjacent corps artilleries. The direct support artillery may fire short of the no-fire line in its own sector. A no-fire line may also be designated by the task force commander for armed helicopters.

h. Objective Area. The commander translates his assigned mission into terms of objectives on the ground which must be secured in order to accomplish the mission. The defense line normally circumscribes all the objectives and maneuver space required for their defense.

The selection and location of the objective area is influenced by the—

(1) Mission.

(2) Enemy situation.

(3) Terrain.

(4) Unit capabilities.

(5) Landing areas available.

(6) Nature of subsequent operation possible.

3–24. Other Ground Tactical Planning Considerations

In developing the ground tactical plan, the following additional factors characteristic of airmobile operations must be considered:

a. The necessity for placing concentrated preparatory fires on the periphery of the landing zone(s) immediately prior to the landing of an assault force.

b. Possible lack of immediately available artillery support. (Aerial artillery may be available when direct support cannon artillery units are not within range of the objective area.)

c. Increased reliance on close air support.

d. The possibility of immediate engagement after landing, which would result in control difficulties.

e. The possibility of shuttling assault forces to the objective area because of the limited number of available aircraft, or loss of aircraft from unexpected mechanical failure or as a result of enemy action.

f. Rapidly changing tactical situation.

g. Limited ground mobility and reliance on airmobility to maneuver ground forces within objective area.

h. Greater separation of units, resulting in exposed flanks.

i. The requirement for expedient deceptive measures and devices designed to mislead the enemy as to strength and dispositions of the airmobile task force.

3–25. Conduct of the Assault

a. The infantry assault phase of an airmobile operation begins with the landing of the lead elements and continues through the seizure of the objective area or the departure of the ground force from the landing area if no objectives are to be seized.

b. The fact that an airmobile force usually lands where there are few fixed defenses and few well-organized enemy combat troops facilitates rapid seizure of initial objectives. The enemy is expected to react rapidly. Initial counterattacks are likely to be hasty, uncoordinated thrusts along main avenues of approach with any units available. These attacks increase in strength, mass, and coordinated effort and may possibly include counterattacks by enemy airmobile forces.

c. There are two general maneuver plans for airmobile assaults, which differ primarily in the proximity of the landing zones to the initial objectives assigned to a unit.

(1) The first type involves the landing of assault units immediately adjacent to initial objectives; it is the type used whenever feasible. Landing zones and landing sites (strips) are selected to capitalize on surprise and the capability of small units to land as a unit on almost any type of terrain. This type of assault has the following advantages:

(*a*) Surprise is exploited by attacking and seizing initial objectives and vital installations before defending forces can react.

(*b*) Assault units avoid the exhaustion resulting from forced marches, carrying heavy combat loads, and manhandling equipment over long distances.

(*c*) Greater initial dispersion makes the force less vulnerable to nuclear weapons.

(2) The second type of assault involves landing, assembly, and reorganization, and then an attack to seize initial

objectives. Landing zones and landing sites are selected for their suitability for landing, assembling, and reorganizing larger units without enemy interference. This type of assault is used if the terrain and enemy situation do not permit landing on, or immediately adjacent to, initial objectives. It has these advantages—

(*a*) Loading, movement, and landing are simplified by the movement of major units intact to landing zones.

(*b*) Landing in an undefended zone reduces losses of aircraft and personnel in the landing phase.

(*c*) Coordinated action is facilitated by establishing control of small units before engaging the enemy in ground combat.

(*d*) Less time is required to train and rehearse troops for this type of assault since it most nearly resembles conventional ground combat.

(*e*) More protection is provided to supporting weapons, command posts, and logistical installations in the vicinity of the landing zones.

(*f*) Organic fire support from outside the objective area is more easily coordinated with ground maneuver.

(3) A variety of factors influence the selection of the type of assault. These include the mission, the state of training of participating units, the terrain, the strength and disposition of enemy forces, and the capability of either side to employ nuclear weapons.

d. The mission and requirement for depth of defense may dictate the assignment of wide frontages to combat elements of the force. However, airmobile units lack ground mobility because of the restricted quantities and types of transportation equipment accompanying them in an assault. The lack of tanks and other vehicles increases the difficulty of conducting offensive (or defensive) operations requiring shock effect or good ground mobility. This deficiency in ground mobility is partially balanced by shorter lines of communication within the objective area and by the possible use of Army aircraft to move reserves, supplies, and equipment.

e. The reduced artillery support for an airmobile operation is partially overcome by greater reliance on the use of long-range artillery, naval gunfire, armed helicopter support, increased close air support, and the displacement of artillery by helicopter to secured firing positions within supporting range of the operation. Further compensation is gained from the difficulty the enemy has in concentrating effective fires on hostile formations suddenly placed in his rear areas. Provided aerial artillery is made available to the assault force during the landing, these aircraft will orbit for on-call fire missions. During the assault, aerial artillery may provide preplanned or on-call fires to support the maneuver force until initial objectives are secured.

f. Airmobile forces may have to be extracted under heavy enemy pressure. Fire support plans and movement plans should consider this possibility, and the ground tactical plan should be detailed enough to conduct this complex operation. Fire support plans will be coordinated with higher headquarters.

3–26. Seizure of Initial Objectives

a. Initial combat after landing requires the coordinated and aggressive action of small units to seize assigned objectives rapidly before the advantage of surprise is lost. All available fire support is considered and used as required. Units assigned reconnaissance and security missions are positioned in the air movement serial to land early and move out rapidly, or to land near the combat outposts (COP) to establish roadblocks, locate enemy forces, disrupt enemy communication facilities, and provide the airmobile task force commander with early warning, security and information. Once a single airlift serial has landed, the remainder of the force must be committed to reinforce and hold the area. Alternate landing zones will not be used until those first-landed forces are strong enough to protect themselves.

b. Units or personnel landed in areas other than those planned direct their efforts to the general mission and establish contact with their respective headquarters as soon as practicable.

c. When communications and the tactical situation permit, centralized control is established.

d. The commander places himself where he can personally influence and control the shifting or allocating of artillery, air, and other fire support. He also influences the action by redisposing forces, modifying the mission, or changing objectives and boundaries; and by employing reserves. Normally, the commander will be in the airborne command post (command and control helicopter).

e. After initial objectives have been secured, subordinate units may seize additional objectives that aid in establishing a coordinated defense. Defensive positions are organized, communications are supplemented, reserves are reconstituted, and other measures are taken which are necessary to prepare the force to repel enemy counterattacks, to minimize the effects of attack by nuclear weapons, or to resume the offensive.

3–27. Development of the Objective Area

a. After initial objectives have been secured, the major consideration is to organize the objective area, if the mission calls for the retention of the objective area. This is accomplished initially by seizing key terrain features and/or the destruction of the enemy forces on the perimeter of the objective.

b. The extent to which the objective is occupied and organized for defense is determined largely by the mission, enemy capabilities, and defensive characteristics of the terrain. The commander adjusts the preplanned disposition of troops and control facilities to fit the terrain and situation. If the mission calls for an early continuation of the ground offensive beyond the initial limits of the objective, and if the likelihood of enemy counterattack during the interim is negligible, the objective is lightly organized. If the mission calls for defense of the initial objective area for a considerable period of time, or if an early enemy counterattack appears likely, more effort is expended in organizing the entire area in depth. As additional units are landed in the objective area, positions are reinforced. The forces at the COP are reinforced relatively early in the operation by maximum use of aircraft. Reconnaissance forward of the COP is intensified by air and ground means. Artillery and mortars, properly protected, may be displaced to positions close behind the COP to provide fire support to security forces. Roadblocks, minefields, and similar artificial obstacles are continuously improved along all likely avenues of approach.

3–28. Conduct of the Defense

a. Airmobile operations involving the retention of the objective area normally have a defensive phase. The period of time involved may vary from a few hours to a few days, depending on the mission assigned, the size and composition of the force, the enemy reaction, and the type of subsequent operation contemplated.

b. Defense measures against nuclear, armored, and air attacks, are of particular importance during and following an airmobile operation.

c. The mission and requirement for defense may dictate the assignment of wide frontages to combat elements of the force.

d. Defense of the objective area employing the perimeter defense is accomplished by organizing and occupying the dominant terrain along the edge of the objective to cover main routes of approach into the position; by denying the enemy use of terrain between defended localities with visual and electronic observation and surveillance devices; by use of fire, mines, and other artificial and natural obstacles; by continuous patrolling; and by withholding a reserve with as much mobility as practicable. Enemy attacks are countered by shifting units, reinforcing threatened areas, employing massed fire support, and counterattacking with reserves. The lines of communication in the objective area should facilitate shifting troops, massing fires, and committing reserves, including units from portions of the defensive area

not under attack. Reserves and the helicopter for transportation are held in positions of readiness to counterattack, to occupy defense positions, to reinforce units at the COP, or to execute blocking missions.

e. Engineer support is used for obstacle construction, demolition, or special operations required during the conduct of the defense. Effective camouflage, combined with the use of deceptive devices, can be a valuable asset to the defense.

3–29. Defense Against Armor

a. Continuing emphasis must be placed on improving and extending antitank defense in the objective area. Organic antitank weapons, artificial obstacles, natural obstacles, tactical air, armed helicopters with mounted antitank weapons, and other available support must be used to maximum advantage.

b. Strongpoints along the COP strengthen their defense through use of natural obstacles such as rivers, swamps, woods, built-up area, hills, gullies, ditches, and other terrain features, augmented by minefields, wire entanglements, tank traps, demolitions, and persistent-effect chemical agents. Antitank weapons are located in depth along avenues of approach favorable for armor.

3–30. Defense Against Nuclear Attack

a. The airmobile task force seizes objectives of significant tactical importance; therefore, an early counterattack may be expected by enemy forces supported by nuclear as well as nonnuclear weapons. The airmobile task force must have reserves with enough mobility to counter enemy efforts.

b. The requirements for dispersion to protect the airmobile task force from destruction by nuclear weapons is in direct conflict with the requirement for an objective area small enough to be defended. It should be remembered, however, that the enemy will be reluctant to employ nuclear weapons within his own lines until the exact target area has been accurately pinpointed by his reconnaissance elements and exploratory, limited-objective attacks. Having decided to employ such weapons, the enemy must first withdraw his own troops to a safe distance. Thus, employment of the bulk of the defensive force in attacks to maintain close contact with the enemy may be more advantageous defensive strategy than an area defense based upon retention of terrain features which may become mere targets for nuclear obliteration.

c. The practicality of a successful defense in a dispersed formation can be increased by using nuclear weapons to attack enemy concentrations.

d. Active and passive defensive measures are used with emphasis on the importance of movement and keeping the enemy unsure of the exact locations, strength, and intentions of the defending force. An aggressive defense based upon attack, counterattack, and the maintenance of close contact with the enemy, though seemingly more costly initially, may prevent the defenders from being formed into a well-defined nuclear target.

e. In addition to meeting conventional requirements for defense, the position must be selected with a view to the influence of the terrain on nuclear bursts. Wooded or built-up areas may become impassable because of secondary fires, blowdown, and debris. Some terrain features provide shields under certain conditions while under other conditions they tend to canalize the effects of a nuclear burst.

f. Key command, control, and logistical installations are duplicated when possible and are provided as much protection as practicable.

g. To achieve further dispersion, the commander may order more of his force to occupy the COP. These COP forces may then be used to reconnoiter in the most likely direction of enemy threats or approaching friendly linkup forces.

h. The principles employed in the conduct of a nuclear defense are the same as those for normal ground operations.

3–31. Defense Against Air Attack

a. An airmobile force is most vulnerable to

air attack during the defensive phase after initially moving into the objective area.

b. Active air defense will initially depend upon Redeye weapons, crew-served automatic weapons, and individual weapons used in an air defense role.

c. Passive air defense measures will also lessen the effects of enemy air attack. Passive measures include cover and concealment, camouflage, dispersion, and movement.

3–32. Withdrawal or Extraction Plan

Airmobile forces may be withdrawn or extracted from landing zones and pickup zones for a variety of reasons. Regardless of the reason, the plan for withdrawal or extraction must be carefully planned and executed. As in other withdrawal operations, the forces become vulnerable to enemy attack and all precautions must be taken to cover the withdrawal with planned fire support and adequate infantry forces. Plans should require as large a force as possible to remain in defense of the landing zone and depart in the final lift. Artillery FO and FAC should be in the last lift. Piecemeal extraction of odd elements, if necessary, should be accomplished prior to the last lift so that tactical integrity of the rear guard can be insured.

Section VI. LANDING PLAN

3–33. General

a. The landing plan is based on the ground tactical plan. As a minimum, it includes the sequence, time, and place of arrival of troops, equipment, and supplies in the objective area. Landing zones are normally selected as close to objectives as the terrain and enemy situation permit. Such selection normally will eliminate or minimize the requirement for assembly areas. Several units may use the same landing area when available landing areas are insufficient or inadequate.

b. Based on recommendations from the aviation mission commander, the airmobile task force commander designates the landing zones and sites to be used by each subordinate unit, and the airmobile task force commander establishes priorities for their landing. Alternate landing zones are designated for use in event the desired landing zones are unusable. Concurrently with the development of the scheme of maneuver, availability of landing zones and sites is considered. All landing zones are selected to provide the best disposition of units for seizing objectives. A unit is normally landed in its assigned sector. If there are not enough landing zones in the assigned sector, elements of the unit may land in the sector assigned another unit. Selection of several landing zones in an area is mandatory. False landing designed to deceive the enemy is highly desirable. Plans should include provisions for aerial artillery and/or armed helicopters, immediately prior to a landing, to strike tree lines or possible areas where the enemy could be concealed. Additional tactical factors to be considered are—

(1) Cover and concealment nearby.
(2) Nearness to dominating terrain.
(3) Covered routes of approach to the objective.
(4) Availability of good road nets.
(5) Adequacy for defense against armor.
(6) The maximum effective use of all available fire support in landing zones immediately prior to the assault landing. This includes the use of aerial artillery and weapons mounted on helicopters which can provide suppressive fires during approach to a landing zone.

3–34. Timing and Operation

a. The commander will select the time of landing when his unit or its elements conduct an independent operation. In selecting the time for the landing, he considers the enemy dispositions and capabilities, the influence of predicted weather, availability of fire support, and the plan for supporting fires.

b. Units may land at beginning morning nautical twilight (BMNT) to take advantage of darkness during the air movement and to attack in daylight; or they may land at end evening nautical twilight (EENT) to facilitate delivery and attack during darkness. Airmobile operations conducted during daylight present fewer command and control problems, and they can be more complex in scope as well as better supported by close air.

(1) BMNT is the start of the period, under ideal conditions (no weather restrictions), when enough light is available to permit close coordination between individuals, to conduct limited operations, and to engage in most types of ground movement without difficulty. The period between BMNT and BMCT (beginning morning civil twilight), known as morning nautical twilight, is when surface visibility gradually increases to about 400 meters. At BMCT, enough light is available to conduct daylight airmobile operations. For air-to-ground visibility purposes, daylight does not exist until BMCT. Any operation with an H-hour prior to BMCT must be planned as a night operation.

(2) Following sunset, the reverse occurs in light conditions. Between sunset and EECT (end evening civil twilight), the air-to-ground visibility decreases to the point that any airmobile operation at that time must be planned as a night operation. During evening nautical twilight, visibility and close coordination between individuals is again limited to about 400 meters and air-to-ground observation to 200 meters.

(3) To conduct a daylight airmobile operation, the time frame between BMCT and EECT must be used. Any operation earlier than BMCT or later than EECT is a night operation and must be planned as such or the chances of mission success are marginal.

c. The airmobile task force may conduct an assault at night or under other conditions of reduced visibility to gain tactical surprise or as an extension of normal daylight operations. Operations under these conditions have the following disadvantages:

(1) Tactical air support may be less effective and artillery fire adjustment may be hindered.

(2) Accurate delivery of units to their landing zones is more difficult.

(3) Reorganization on the ground is more difficult and time-consuming.

Note. Proper use of flares and other illuminating devices as well as pathfinders can minimize (1), (2), and (3), above.

d. The airmobile operation is timed to permit tactical assessment and exploitation of the effects of nuclear weapons. The most critical period of the operation, as far as vulnerability to enemy action is concerned, is the time between the initial landings and the assault of the objective(s). When assault units land immediately adjacent to their initial objective(s), they may have to delay reorganization until the objective(s) has been seized. However, landing zones should be cleared immediately to permit uninterrupted landing of succeeding lifts. Any reorganization should occur in locations adjacent to the landing zone. The term *reorganization* as used here pertains more accurately to assembly of personnel and units. Minimum reorganization takes place in an assembly area or en route to the objective area. Aggressive action to seize initial objective areas is of primary importance. After objectives are seized, commanders regain control of their respective elements.

e. Landing operations will be accomplished as follows:

(1) Troops land in assigned landing zones according to their planned tactical employment.

(2) The rapidity with which units land varies greatly with the type and quantity of aircraft, capacity of the landing zones, and the turnaround time between pickup and landing zones. When the assault echelon can be transported in one lift, it may land in a few minutes. If the assault eche-

lon has to be shuttled, a longer time is required; however, as the airmobile task force is more vulnerable at this critical time, shuttling of the assault echelon should be avoided, if possible.

(3) The initial flights lift the assault elements necessary to seize and secure the landing zone. Reconnaissance units land early. If pathfinders are not already in the landing site, they should land early in the order of the assault echelon to establish air traffic control and assist in assembly. Command groups land early to establish control promptly and enable commanders to gain timely information on the progress of the ground action. Forward observers and air control teams land early in the order of the assault echelon to quickly control supporting fires from within and from without the objective area. Supporting weapons land early and as close as possible to their planned initial firing positions.

(4) All individuals and units land with essential weapons, equipment, and ammunition to reduce the time required for assembly. Additional equipment and supplies may be delivered later by medium helicopter. Light command-and-reconnaissance vehicles and weapons that can be transported by the aircraft are landed with the units.

(5) Troops and equipment are unloaded from aircraft quickly and cleared from the landing sites (strips). This facilitates aircraft traffic flow, reduces danger of accidents, minimizes casualties from enemy fires and counter attack, and clears the aircraft rapidly from the landing zone (fig. 3–4.)

Figure 3–4. An assault force exiting from helicopters and moving to an assembly area.

(6) During the planning stage, the airmobile task force commander must determine the maximum loss he will accept during the assault landings before changing to an alternate plan. This must be coordinated with the aviation mission commander. Authority for aborting the assault landing or diverting to an alternate landing zone may be delegated to an individual who, by reason of his position in the assault force, is best able to analyze the results of enemy fire. He may be from the aviation unit or from the ground force. When enemy fire interferes with the landing, prompt countermeasures are taken using all available fire support means. It may only be necessary for the airmobile force to orbit while enemy fire is being neutralized. However, if the countermeasures are ineffective a decision must be made to abort or proceed with an alternate plan. It is during this phase that the closest coordination between all units, both ground and aviation, must be effected.

f. Reorganization (assembly) upon landing will be governed by the following considerations:

(1) When units land adjacent to their initial objectives, then squads, platoons, and special teams proceed to their objectives immediately, with little or no reorganization. In this type of assault, units reorganize concurrently with, or soon after, the seizure of the initial objectives.

(2) When assembly areas are required, they are located within or adjacent to landing zones but clear of landing sites (strips). The elements that land first may be charged with the security of the landing zones. Succeeding elements move directly from the landing sites to the predesignated assembly areas, assisted by unit guides, appropriate assembly aids, or pathfinders. Patrols are sent out immediately from the assembly areas to gain information on enemy activities, to establish outposts, and to gain contact with other units establishing assembly areas around the landing zone. All elements carry the equipment they immediately require for their missions. Upon arrival in assembly areas, unit commanders report the status of their units, receive any new instructions, and continue on their missions. These reports of readiness for action permit higher commanders to make changes in missions that are warranted by circumstances.

(3) Troops may be designated to remain on the key terrain in or around the landing zones to defend the area, assemble stragglers, establish prisoner-of-war collecting points, care for patients, or handle incoming supplies.

(4) Reorganization is complete when assault elements of all units are assembled and communication is established.

(5) Reorganization and assembly for subsequent airmobile operations may occur after termination of the current operation.

g. See appendix C for additional information on the selection, preparation, and operation of drop zones and landing zones. See appendix B for information on pathfinders and unit terminal guidance personnel.

Section VII. AIR MOVEMENT PLAN

3–35. General

The air movement plan (annex to the unit operation order) is based on the landing plan and support of the ground tactical plan and is prepared by the ground unit commander. Technical assistance in preparing the air movement

plan is rendered by the aviation mission commander providing the support aircraft and by the pathfinder unit, if used.

3–36. Air Movement Plan

The air movement plan includes a flight route diagram and an air movement table. In the absence of written orders, such information is covered in oral briefings.

a. Time Schedules. Loading, takeoff from the pickup zone, and assembly of the helicopter formation are accomplished according to a mutually planned time schedule that will place the lead elements of the first lift in the landing zone at H-hour, the time the airmobile task force commander has designated as touchdown time in the landing zone.

b. Flight Routes.

(1) The flight routes to and from the landing zone are selected to avoid known or suspected enemy positions. It is desirable that flight routes follow terrain which facilitates navigation to the landing zones. Alternate routes are also planned. A flight route is a control measure that permits more precise timing, and insures that the airmobile task force does not fly over undesirable areas. Each lift on a multiple-lift assault should use a different flight route. Specific considerations in the selection of flight routes are—

(*a*) Terrain.
(*b*) Weather.
(*c*) Time of movement.
(*d*) Enemy detection capability.
(*e*) Enemy forces (to include air defense weapons).
(*f*) Friendly supporting weapons capability.
(*g*) Distance to the objective area.
(*h*) Air escort forces.
(*i*) Location and number of friendly air defense units.
(*j*) Communication air-to-air, air-to-ground, and ground-to-ground.
(*k*) Areas of friendly supporting fires and airstrikes to be avoided.

(2) The flight routes are defined by air control points which may be established by use of easily recognizable terrain features or by electronic navigational facilities.

c. Control Measures. Control measures used for an air movement include various control points.

(1) *Start point (SP).* A point on the ground over which the airmobile task force commander flies to initiate timing and to establish flight route heading and altitude.

(2) *Air control point (ACP).* A point on the ground along the flight route, easily identified from the air, used as a reference point to monitor the progress of the airmobile force. ACP may be assigned code numbers or names.

(3) *Release point (RP).* A readily identifiable point on the ground over which individual flight elements are released to proceed to their landing zones.

(4) *Communications check point (CCP).* A readily identifiable point on the ground along the flight route at which flight leaders initiate radio contact with landing zone control elements. The CCP is normally also an ACP.

d. Flight Corridor. Supporting fires will be coordinated with the movement of the airmobile force. Flight corridors (fig. 3–5) which include all flight routes are designated and coordinated with appropriate fire support coordination agencies. All fires within these corridors are coordinated or restricted. Ideally, the least possible restrictions are imposed; however, the width of the corridor will vary with each operation and will be determined by—

(1) Aircraft formation.
(2) Type of aircraft.
(3) Terrain.
(4) Weather and visibility.
(5) Navigational aids.

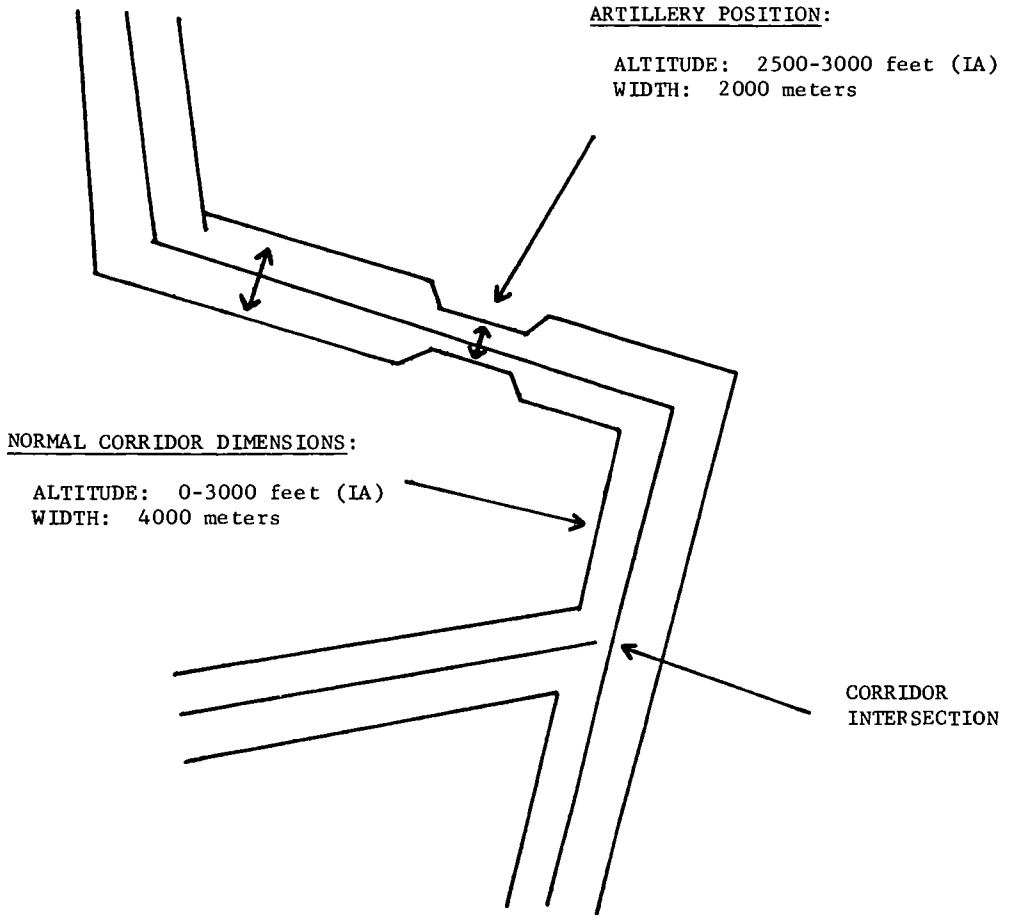


Figure 3–5. Schematic of flight corridor.

e. Flight Formation. The flight formation for any given mission is influenced by technical as well as tactical considerations. Technical considerations govern flight restriction. An important consideration in this portion of the air movement plan is that flight serials are arranged within the formation to best support the landing plan and subsequent tactical operations. Escort aircraft will normally accompany the troop lift aircraft to provide fire support. During the landing phase, to minimize ricochet hits from armed helicopters, these aircraft are positioned to the flanks of troop helicopters. Flight formations may be staggered in the direction from which door gunners can fire weapons during approach or takeoff from a landing zone.

f. Altitude. Low altitude flights reduce the enemy's capability to detect the air movement or to effectively utilize long-range, large-caliber weapons fire on the aircraft while they are in flight. Contour flying enables aircraft to take maximum advantage of terrain irregularities, thus gaining some protection from small-arms fire, enemy acquisition radar, and ground-to-air missiles. However, the primary consideration may be to avoid enemy small-arms fire by flying at a higher altitude. Altitude and flight area control must be planned for aircraft operating in the vicinity of the landing zone. Aircraft not directly involved in landing troops or providing aerial fire support such as command post helicopters, airborne FAC, airborne artillery observers, and medical evacuation

should remain at altitudes above or away from the flight path of the assault helicopters. Specific altitudes and flight areas may be assigned these supporting aircraft.

g. Flight Speed. The prescribed speed to be flown depends on the type of aircraft, the formation, and the use of external sling loads. The aircraft normally fly at the rated cruising speed. When two or more different types of aircraft fly in a single serial, the aircraft fly at the cruising speed of the slowest type.

h. Movement Control. Movement control information includes the designation and location of the flight control elements, emergency procedures, communications, and navigational data. The airborne command post will be used to control movement. Normally, navigation will be by pilotage. In other instances, manned air control points with electronic navigational facilities and terminal guidance in the objective area may be required. Start points, air control points, communications check points, and release points are designated to assist in control of the air movement. These navigational facilities along the route, as well as control of aircraft in the objective area, may be provided by the unit being airlifted or by pathfinder elements. Pathfinder elements of platoon, detachment, or lesser size are moved to the objective area either in advance when surprise will not be compromised or is not a factor, or with the lead elements for purposes of:

(1) Indicating with electronic and other aids the desired direction(s) and route(s) of movement for aircraft and the identity of selected points on the terrain.

(2) Furnishing other essential services during the airmobile operations. For details, see appendix B, and FM 57–38.

i. Air Traffic Control. An air traffic control unit may be used in staging areas when available, or to relieve pathfinders in landing zones when high-density air traffic or instrument weather is anticipated.

3–37. Conduct of the Flight and Landing

a. General. The airmobile task force commander and aviation mission commander are normally located in the same airborne command post aircraft. However, the aviation mission commander's primary area of interest is the tactical delivery of the troops, and he may desire to supervise a lift having difficulties with natural obstacles; whereas the task force commander may desire to supervise the most critical (less secure) landing zone which may be in a second area. In this case the task force commander's S3 should be in one aircraft with the aviation mission commander, and an aviation liaison officer with the task force commander in a second aircraft. The aviation mission commander controls the airmobile task force en route, as directed by the airmobile task force commander. Organic aircraft are used for route reconnaissance, protection against ground fires, assistance in controlling the flight of the airmobile task force, and landing zone reconnaissance immediately prior to landings.

b. Lift-off. Lift-off may be by individual aircraft or by section, platoon, company, or battalion formation. Under some conditions such as in an extremely dusty pickup zone, a restricted landing zone, or a high density altitude/no-wind condition, it is advisable to break the formation into small increments for takeoff. Simultaneous lift-off from the pickup zone by all elements is desirable, however, for the following reasons:

(1) Ease of escort and fire support for more effective cover.

(2) Airmobile task force control is more positive when aircraft are concentrated.

(3) The airmobile task force presents itself as a target to ground fire from a given point for a shorter period of time. A prolonged takeoff from the pickup zone may permit the enemy to reposition automatic weapons in sufficient time to fire on the remaining aircraft.

c. Join-Up.

(1) The flight leader adjusts the speed and rate of climb of his flight to insure that all elements of the flight close the formation at the required altitude. Trail aircraft will report or signal when all aircraft have closed into formation.

(2) When a takeoff is made in increments, a forming turn can be made to allow all elements of the flight to assemble in formation. The forming turn is not required during a simultaneous takeoff.

(3) The flight is closely regulated by varying air speed and making minor deviations so that the airmobile formation passes over the start point at the precise time scheduled.

d. Flight Control.

(1) ACP define the flight route(s). They may be either visual references or electronic navigational facilities operated by pathfinders in some circumstances.

(2) The flight leader reports passing each ACP to the mission commander unless otherwise instructed.

(3) The aviation mission commander insures that the FSCOORD and the air liaison officer are always aware of the airmobile task force location.

(4) The aviation mission commander changes en route formations as required and implements emergency and crash procedures when necessary.

(5) When a significant threat raises along the flight route—such as a heavy concentration of enemy antiaircraft fire —the aviation mission commander will give the order to switch to previously designated alternate flight routes. If the landing zone is to be changed, the airmobile task force commander will make the decision and inform the aviation mission commander.

e. Fire Support En Route.

(1) Armed helicopters normally provide security for the airmobile formations, security for downed aircraft, route reconnaissance, and other assistance en route as desired by the aviation mission commander (fig. 3–6).

(2) Fighter aircraft may provide security to both flanks, the front, and rear of the formation. They will normally be on air alert rather than with the formation. Tactical air support aircraft may provide strikes against known enemy ground positions from which fires could adversely affect the progress of the airmobile task force formation.

f. Release Point. Over the landing zone release point, the airmobile force may be divided into subelements, which proceed to assigned landing zones. The RP is normally 5 to 8 kilometers from the landing zone. This allows the formation time to descend and slow down for landing. The RP is also a reference point used to time the lifting of artillery and tactical airstrikes. Heading from the RP to the landing zone is generally the same as the direction of landing. Multiple zones are designated to allow flexibility in event of wind changes, hostile fire, or a change in the ground tactical situation.

g. Landing Zone Preparation. The landing zone may be prepared by either aerial or ground artillery, tactical air, armed helicopters, naval gunfire or any combination of the above.

(1) Fire bombs and incendiary bombs are not normally used in the landing zone and its immediate vicinity just prior to landing. They may be used when required against appropriate targets provided the airmobile task force commander has considered the possible undesirable fires and reduced visibility from smoke which may result from their use.

Figure 3–6. Armed helicopter firing rockets in support of an airmobile force.

(2) Armed helicopters usually will reconnoiter the landing zone prior to arrival of the lift element. They suppress and reconnoiter by fire around the zone and recommend final landing instructions.

(3) Armed helicopters can provide area coverage or neutralize observed enemy positions.

(4) For close-in fire support, armed helicopters fly abreast or slightly ahead of the airmobile task force, delivering suppressive fires to the front and flanks. Other armed helicopters following the formation may protect the rear. After the initial pass, they may enter a continuous fire pattern, providing cover to the flanks, front, and rear of the landing zone. Armed helicopters are capable of delivering a devastating volume of fire from a hover, under certain situations. However, hovering fire should be used only when it is necessary to clear a terrain mask, or to attack lightly defended areas for short duration.

(5) Fire support preparations and tactics should be varied frequently. Preparations should be short and intensive (app C).

(6) A deliberate smoke curtain, if it does not interfere with operation of aircraft, may be dispersed by helicopter-borne troop land smoke screen system to conceal the arrival of the lift element. In addition, if enemy troops are in proximity to the landing zone, the enemy may be temporarily incapacitated during the landing operation by employment of CS munitions mixed with the smoke. Crewmembers and assault troops should wear protective masks when CS is employed.

h. Landing.

(1) In developing the landing plan, the airmobile task force commander must

include guidance concerning action to be taken in the event the airmobile task force receives an unacceptable amount of ground fire just prior to landing.

(2) Preparations may be shifted rather than lifted as the assault formation approaches the landing zone. An effective method of continuing the fire support during the assault is to shift artillery to one flank, conduct a simultaneous airstrike on the opposite flank, and use the armed helicopters on approach and departure lanes. When using such a plan, assault formation navigation must be precise in order to avoid tactical airflight paths and artillery gun-target lines. Necessary fire control can be accomplished if the FSCOORD or the artillery liaison officer or forward observer, and the air liaison officer or the forward air controller, are in the airborne command post with the airmobile task force commander and each representative maintains positive communication with his own element.

(3) A simultaneous landing is desired to place the maximum number of troops on the ground, in a given area, in the shortest possible time.

(4) Landing zone size and shape or enemy action may dictate a formation change while on final approach (fig. 3–7).

(5) Upon landing, troops disembark immediately, hit the ground, wait for helicopters to depart, and then clear the landing zone, moving into the tactical formation called for by the commander's plan. At night, it is imperative that troops hit the ground and wait for the flight to depart the landing zone.

(6) If the ground force has patients to evacuate while the buildup is still in progress, they should be moved to a designated patient-collecting point location. This procedure permits uninterrupted continuation of the lift.

(7) Off-loading heavy internal loads is time-consuming and slows troop buildup. Such loads should not be programed in the initial lift.

(8) Ground commanders must insure that off-loaded personnel and equipment are quickly moved out of the landing zone. This is especially critical in a restricted landing zone. It must be remembered that a landing zone is not a supply base. Base camp supplies, tentage, etc., should be well removed from the landing zone to prevent tent blowdown by low-flying helicopters and to provide an unrestricted landing zone to support the operation (fig. 3–8).

(9) Air cavalry and armed helicopters can be used to reconnoiter approach routes to the landing zone, screen and delay enemy movement, and provide limited on-call fire support for the ground force elements. Their activity is limited by the amount of fuel and ammunition they have remaining after escorting the lift. Close coordination by radio is essential for this type of operation.

Section VIII. LOADING PLAN

3–38. General

a. The loading plan is based on the air movement plan. The plan should be as simple as possible. For a small-scale operation, when no accompanying supplies and equipment are lifted, it may be only a matter of announcing where and at what time troops are to load. For a large-scale operation, loading may be complex enough to require written instructions as to the delivery of troops and equipment in the loading area, designation of loading sites, the time and priority of loading, and other details (FM 57–10).

Figure 3–7. Using a road for a landing site.

b. Under nuclear warfare conditions, more emphasis is placed on avoiding concentration of forces than in nonnuclear warfare. Maximum passive measures are taken to protect personnel, equipment, and supplies. Movements are conducted at night or during periods of reduced visibility if possible.

3–39. Briefing

Time and situation permitting, troops are briefed in detail on the loading plan.

3–40. Loading

a. In preparing loading plans, primary consideration is given the mission. Tactical integrity is maintained and key personnel are distributed throughout the aircraft loads. Spare aircraft should be made available if possible. Loading plans must be consistent with the ground tactical plan and air movement plan on which they are based.

b. The ground commander designates the sequence for movement of personnel, supplies, and equipment to the loading sites. Maximum security is enforced.

c. If the pickup zone is secure, troops, supplies, and equipment should arrive in the load-

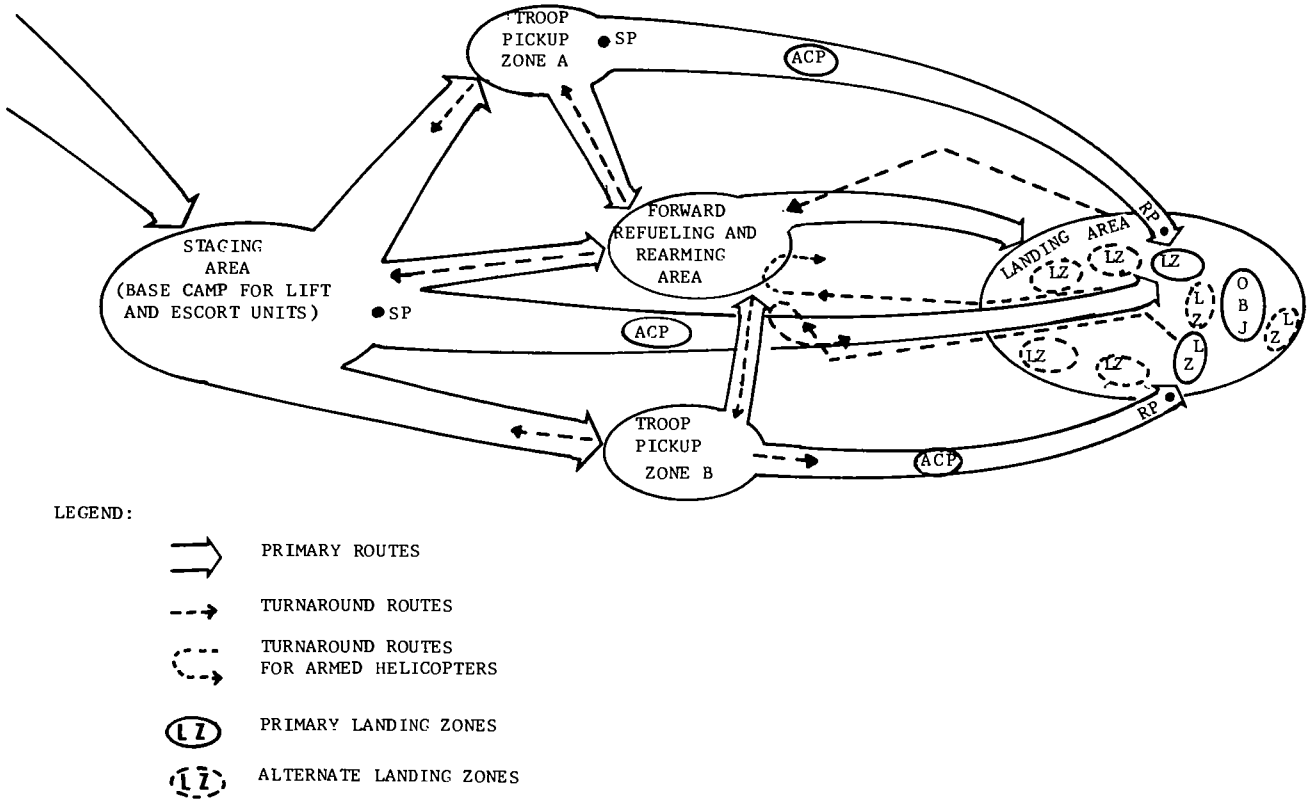


Figure 3–8. Multiply lifts using forward refueling and rearming area.

ing area sufficiently in advance of the arrival of aircraft to permit proper organization and breakdown of personnel and loads, and the completion of any required final coordination. This will insure rapid loading, and minimize confusion and ground time for aircraft. Further, timing should include immediate takeoff of aircraft subsequent to the loading of troops and equipment.

d. The unit to be lifted provides all essential equipment and personnel for external loading (sling loading), including hookup teams. External-load helicopters normally are located at the rear of formations. (In some situations, all helicopters of the formation may pick up sling loads.) If simultaneous arrival of internal-load and external-load helicopters is desired, the external-load helicopters hookup (ideally in a separate part of the loading area) and depart before the faster internal-load helicopters in the formation.

e. For further details on loading, see paragraph 2–7.

Section IX. STAGING PLAN

3–41. General

In the pickup zone, the ground force and aviation units are integrated into a tactical airmobile force. Last-minute planning adjustments are made, if necessary, by coordination between the airmobile task force commander and the aviation mission commander. The airmobile task force commander controls the operation until the last lift has been accomplished and aircraft are released.

3–42. Refueling and Rearming

The aviation mission commander is responsible for coordinating refueling time, place, and facilities with the airmobile task force commander. Refueling is normally not required in the pickup zone; however, there may be occasions when a forward refueling and rearming area must be established at or near the pickup zone. Forward refueling and rearming area security is provided by the supported unit.

3–43. Final Coordination

General considerations for coordination are discussed in paragraph 3–11.

3–44. Staging Area Control

Control of movement into the staging area is essential in order to prevent congestion and confusion. The objective of any loading zone control should be to expeditiously load troops, supplies, and equipment. Pathfinder elements can provide air traffic control, and, consistent with unit SOP and requirements, they may assist the lifted unit in loading. For some operations, the staging area may be at a location away from the division airfield. Strict security precautions must be taken to insure the safety of ground convoys of troops and equipment in their movement to the staging area. Staging area support troops and the assault troops to be lifted out of the staging area may be airlifted to the staging area by helicopters on U.S. Air Force troop transports. Upon reaching the staging area, the various supporting elements (POL specialist, aircraft maintenance, ammunition resupply, armed helicopter ordnance, and medical aid stations) must move to preselected areas and staging area security forces must take up positions. Command of aviation support elements may be vested in the aviation unit executive officer, while command of ground troop support elements may be vested in the ground unit executive officer.

3–45. Manifest

A manifest, or record of the load, in each aircraft should be kept at the loading zone. This record should be simple and capable of quick preparation in order to avoid a large administrative requirement. For example, it could be a sheet from a squad leader's notebook listing the men and equipment loaded into his aircraft and containing tail number or chalk number of the aircraft. All such lists are left with a unit representative in the rear echelon. Manifesting will not be possible when units are extracted under fire or when emergency loading is required.

Section X. TYPICAL SEQUENCE OF EVENTS FOR A LARGE-SCALE AIRMOBILE OPERATION

3–46. General

The airmobile task force commander and his staff will follow a planned sequence of events to conduct an airmobile operation. The sequence that is provided in this section is typical of how a large-scale airmobile operation can be conducted. Unit SOP and other circumstances may vary the sequence described below. Smaller scale operations may well follow a modified sequence and some of the unrequired support may be eliminated. However, the timing and planning of a small-scale operation assumes no less importance.

3–47. Actions Prior to the Staging

a. General. After receipt of a mission, the aviation element is responsible for establishing liaison with the supported unit. For a company-size or larger lift, initial liaison is normally made by the aviation mission commander and his planning representative (liaison officer).

b. Command and Staff Reconnaissance. Normally, the commanders of both the aviation element and the supported unit conduct a flight reconnaissance of the area of operations. See paragraphs 3–13 and 3–16 for more detail.

c. Planning. The airmobile task force com-

mander receives advice from the aviation mission commander and approves the concept of the airmobile task force movement. See paragraph 3–9 for more detail.

d. Mission Briefing. A detailed briefing that includes intelligence information, the tactical ground plan, and staging plans is given to the ground units of the airmobile force. Essential information about the supporting aviation unit's plans and safety while operating in and around aircraft is included in the ground unit briefing. The members of the supporting aviation unit are briefed on the details of the aviation support and the ground tactical plan. Extensive use is made of checklists (app H) to insure that all unit members have essential information and that it is given in the same sequence to all units briefed.

e. Communications Check. Communications are checked prior to the operation by all participating agencies to insure net compatibility and that equipment is functioning. (This check should be conducted in a manner that will avoid compromise of the operation.)

f. Lineup of Aircraft. The supporting aviation unit will line up the aircraft both on the ground prior to takeoff and in the air to insure that there is an integration of tactical integrity between the supported and aviation elements as planned.

g. Movement to the Staging Area. Movement of the aviation unit to the staging area is accomplished by following flight routes which avoid enemy positions, do not interfere with friendly artillery fire, minimize enemy observation, and allow ease of navigation.

3–48. Staging and Loading

a. In areas of operations where there are no clearly defined battle lines, it is often necessary to establish forward logistical bases from which airmobile operations may be sustained. This applies to units operating at distances from a primary base which are beyond the practical turnaround range (or the radius of action) of the supporting aircraft. Small landing strips and highways (or in some cases, cleared open areas which must be prepared immediately prior to the landing of large cargo aircraft) which will support a unit's base may be used for staging areas. All available cargo aircraft are used to provide the quantities of supplies necessary to conduct an airmobile operation. Volume of air traffic will be intense during peak periods in the staging area in preparation for the operation. Pathfinders or other air traffic control personnel will be required to control the landing, parking and takeoff of the aircraft. Stockpiling is normally accomplished only a matter of hours prior to the planned operational time in a secured area to preclude alerting the enemy to an impending large-scale airmobile operation.

b. Commanders and staff officers coordinate and finalize plans and last-minute details associated with the ground tactical plan. Confirmation of the following elements is essential prior to the beginning of the operation:

(1) Formations.
(2) Altitudes.
(3) Routes.
(4) Corridors.
(5) Employment of prestrike suppressive fires.
(6) Vector control of aircraft.
(7) Alternate plans for routes, landing zones, fire support, and extraction.

c. Units and equipment to be lifted will be organized and prepared to load, thus expediting the actual pickup operation. Flexibility on the part of all concerned is mandatory. In the event that density altitude prevents the lift of planned loads, units and equipment may have to be phased back at the last moment. However, tactical integrity for both lift and lifted units remains a prime consideration. Every effort must be made to minimize the aircraft time on ground. Positive control of aircraft and lifted units is an absolute necessity at this crucial time. Pathfinders can provide this necessary control.

d. Aircraft must be refueled and armed from prestocked items in accordance with the

refueling and rearming plan. Lightweight, portable, rapid refueling systems hauled by medium and heavy helicopters are used whenever available.

3–49. Air Movement Phase

a. A few minutes prior to the departure of the main body, the airmobile task force commander dispatches a reconnaissance element—usually an armed helicopter fire team—to reconnoiter the intended flight route for enemy antiaircraft and ground positions. The results of this reconnaissance may be the determining factor for the commander to select an alternate route.

b. The lift aircraft, escorted by armed helicopters, depart the stagefield for the pickup zone.

c. Preparatory fires are placed on known or suspected positions at the periphery of the intended landing sites. These fires may consist of integrated ground or aerial artillery, naval gunfire, tactical air, and armed helicopters. Preparatory fires precede the landing by airmobile forces by the minimum practical time. Air observation, troop lifts, and airstrikes must be conducted as close to artillery fires as safety permits. Artillery fires may have to engage the enemy in any direction. For this purpose, artillery may be prepositioned by helicopter in forward secured areas. Aerial artillery may be available when direct support cannon artillery units are not within range of the objective area(s). Preparatory fires must be timely, accurate, functional and continuous. Where possible, preparatory fires shift rather than lift. The fire support sequence normally is—

(1) Tactical air.

(2) Artillery and/or naval gunfire.

(3) Aerial artillery (airmobile division).

(4) Armed helicopter.

d. The airmobile task force commander and the aviation mission commander, accompanied by the fire support coordinator, air liaison officer, and other key members of the airmobile task force commander's staff, are normally in position aboard an airborne command post to control the air movement and direct fire support. An alternate command post group and aircraft are on standby to replace the primary command post group to insure continuous command and control during the critical assault phase.

e. Aerial fire support in the form of armed helicopters precede the airmobile task force into landing zones to provide last-minute suppressive fires.

f. The lead reconnaissance element (armed helicopters) immediately follows the aerial fire support elements. These helicopters perform a simultaneous suppressive fire strike and low-level reconnaissance seconds ahead of the airmobile task force landing to insure that any enemy forces in the landing area have been neutralized. If enemy fire or forces are located, additional suppressive fires may be brought to bear on enemy positions, or an alternate landing zone may be used.

3–50. Landing Phase

a. The lift aircraft modify the flight formation, if necessary, for the landing. The landing zone touchdown area is normally marked by the pathfinder or reconnaissance element to positively identify the zone.

b. Troop leaders on board the lift aircraft are given final instructions to include direction of landing. Troop leaders should be seated to permit observation of the landing zone during the approach so that they are oriented upon landing and can pass instructions to the troops whether to dismount by jumping from a hover or to wait until touchdown. Troops must dismount rapidly to designated assembly areas. Objective areas must be seized aggressively to reduce the vulnerability of the ground force during this critical phase. Designated armed helicopters are on station long enough to escort the helicopters from the zone. Aerial artillery or armed helicopters used in that role remain on station during the entire operation to provide immediately responsive aerial fire support to the ground troops. Aircraft pilots must be responsive to directions from the ground commander or control element when approaching

and leaving an area to avoid friendly and enemy ground fire.

c. Aeromedical evacuation helicopters are introduced as required to rapidly evacuate patients (fig. 3–9). Other utility or transport-type aircraft that have space available can be used to evacuate prisoners of war from the landing zone—as long as proper security precautions are taken aboard the aircraft. Medical evacuation helicopters should be used exclusively to support medical requirements except in extreme emergency.

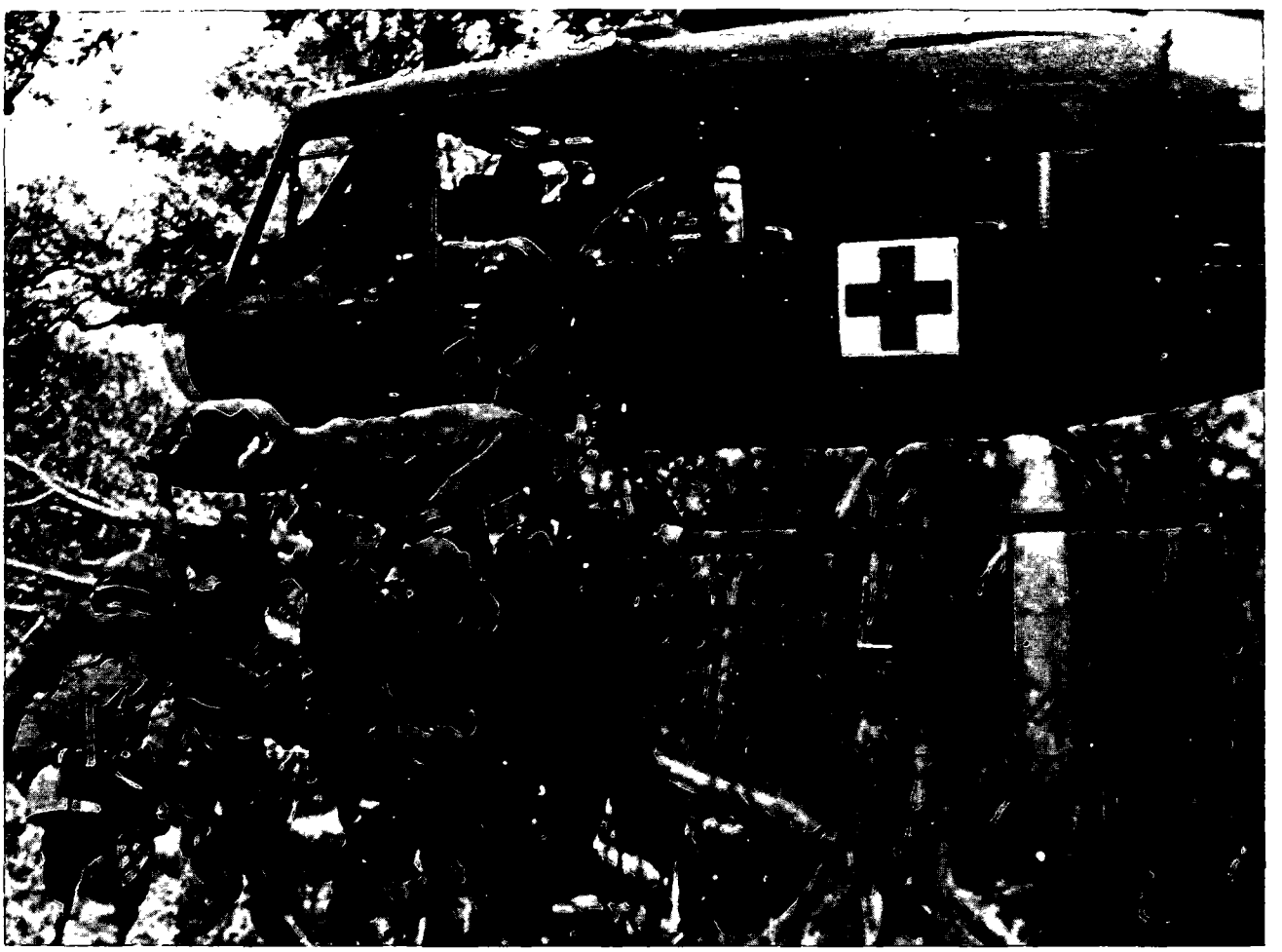


Figure 3–9. Aeromedical evacuation by helicopter under difficult terrain conditions.

d. Based on prearranged plans, medium and heavy helicopters evacuate damaged aircraft from the landing zone to prevent further damage and to clear the landing zone for subsequent lifts.

e. Supplies to include ammunition, explosive demolitions, pyrotechnic munitions, and water are of critical importance to the airmobile task force. These supplies, particularly ammunition, are delivered early in the operation. Aircraft control and logistics elements can provide the necessary control, segregation, and distribution of supplies in the landing site. Small sections of bridging may be slingloaded by helicopters into areas where bridging will facilitate ground troop movement over streams and small rivers.

f. A reaction force consisting of one or more

rifle companies mounted in lift helicopters can be held in readiness on station nearby to provide the necessary reserve element. On occasion, elements smaller than company size may constitute a reaction force. This force can rapidly mount a counterattack, reinforce, or perform other on-call missions.

g. In airmobile operations involving host country forces and U.S. aviation units, at least two U.S. advisors with appropriate FM radios land with the first serial to insure continuous communication through the advisory net, with the air mission commander, and with fire support elements.

3–51. Subsequent Operations

a. After seizing the objective area, an airmobile force may defend, linkup with a surface force, conduct retrograde operations, or conduct further offensive operations. If the subsequent actions involve defense or conduct of further offensive operations, there must be a buildup of troops, supplies, equipment, and facilities essential to accomplishment of the mission. For considerations during withdrawal (extraction) see paragraph 4–5*d*.

b. When enemy contact is light, medium and heavy cargo helicopters can be used effectively to rapidly reinforce, replace, or extract an airmobile force.

CHAPTER 4

TYPES OF AIRMOBILE OPERATIONS

Section I. GENERAL

4–1. Introduction

a. For airmobile operations to be successful, regardless of the scale on which they are conducted, they must contribute to the success of the larger, overall ground effort of which they are a part. Although the employment of airlifted forces may allow for the rapid seizure of selected objectives, such seizures must contribute to the purpose for which the operation is being conducted. Objectives must be selected which will cause the enemy to react violently, divert strong forces away from another area in which a crucial operation is being conducted, or, in the face of the overall threat, abandon the area to avoid destruction. Airmobile objectives should be located on terrain unsuitable for mechanized operations, thus permitting an airlanded force, light in antitank weapons and with only a limited indirect fire capability, to exert maximum influence upon enemy forces.

b. Airmobile forces are employed on deep objectives at increased risk. However, the attack of deep objectives is feasible and may often be highly desirable considering that the airmobile force has a unique extraction capability which was not available in former airborne operations. Greater exposure to enemy ground fire, commensurate loss of surprise, possible involvement with deep enemy reserves, and increased vulnerability to enemy counterattack pending linkup with other ground forces are risks which must be expected in such operations. The primary prerequisites to success in such operations are the capability to move forces to an objective area without incurring unacceptable losses and the capability to provide them with required combat and logistical support.

c. The substantial mobility differential of an airmobile force over a dismounted ground force enables an airmobile force commander to achieve surprise and deception and to conduct operations to a greater depth within his area of operations. Airmobile units are particularly suited for use as reaction forces and in search and clear/destroy operations when information of the enemy location, strength, and disposition is vague. Although airmobile operations are particularly suited to conterguerrilla operations in rear areas and operations against insurgent forces in internal defense environments, they are also suitable for employment against a conventional enemy force in either a nuclear or nonnuclear environment.

Section II. OFFENSIVE OPERATIONS

4–2. Movement to Contact

a. General. During movement to contact, airmobile forces may be employed with the covering force, between the covering force and advance guard, with the advance guard, and on the flanks of the protected force. An airmobile force is particularly suited for employment on the flanks of the protected force. Reconnaissance for suitable landing zones is continuous. Air cavalry units are particularly suited for reconnaissance of selected areas or seizure of key terrian. Airmobile security elements between the advance guard and covering force normally are under control of the main body commander. He controls them by

assigning phase lines, checkpoints, and objectives.

b. Meeting Engagement. In a meeting engagement, the force seizing the initiative has the advantage. The airmobile task force commander must have control over the supporting aviation unit in order to use airmobile forces quickly and effectively in a meeting engagement. He can use airmobile security forces to seize key terrain, to rapidly locate the enemy, and to gain knowledge of enemy intentions. The size of these security forces is based on the mission and aircraft and fire support availability. As soon as the commander obtains information on the enemy, selects suitable landing zones and can gain fire superiority, he can launch an airmobile maneuvering force against an enemy. He can do this more promptly if his reserve consists of airmobile forces. The operation should be launched before the enemy can deploy for an attack. Through the use of overt movement to contact and quick reaction forces, which can envelop or infiltrate, he can use airmobile units to force the enemy into early deployment or attack during the meeting engagement. Small units can be moved rapidly to harass, delay, and generally impede the progress of the enemy, ranging over a wide area of operations. The threat offered by an airmobile reserve may force the enemy to react in a manner favorable to the friendly forces.

4–3. Reconnaissance in Force

An airmobile force offers a rapid means of development of reconnaissance in force. The commander can attack the enemy on the flanks or when the enemy disposition permits in rear areas. Airmobile forces can discover and test the enemy's dispositions and strengths (or weaknesses) and rapidly develop other intelligence. Air cavalry elements operating separately, in conjunction with, or as part of, the airmobile force can conduct reconnaissance to discover the enemy's disposition and enable an airmobile force to develop the situation. Limited-objective attacks and raids are suitable to airmobile operations.

4–4. Coordinated Attack

During offensive operations, after contact has been gained with the enemy and the situation has been developed, an airmobile task force may launch coordinated attacks against subsequent objectives. Such attacks may render delaying positions ineffective, exploit, weaknesses in organized positions, block reinforcement or withdrawal, disrupt support operations, and reduce the enemy's defensive capability. These attacks may be independent operations or part of a larger operation.

a. Attack Against Delaying Positions. Airmobile reconnaissance and security forces can quickly determine the depth of enemy delaying positions and pinpoint obstacles prepared or improved by the enemy. Through the use of deceptive movement and reconnaissance in force of enemy delaying positions and key installations, they may deceive the enemy and force him to react offensively, or defensively. With their high degree of mobility, airmobile forces can bypass initial delaying positions to strike succeeding ones, rapidly reorganize for attack against other positions, and force or block the enemy withdrawal. Aerial fire support aircraft are particularly suited to reducing or eliminating delaying positions.

b. Attack Against Organized Positions. An airmobile force may overcome the defensive strength of an organized position which a ground force might find difficult to penetrate or envelop. Through the use of well-coordinated fire support combined with mobility and timely, accurate intelligence, an airmobile force can attack an organized position from any direction. This capability permits maximum deception and surprise. Troops can be landed in the rear or on the flanks of organized enemy positions or close to the objective area—provided fire support has neutralized enemy automatic and antiaircraft weapons fires. Ideally, airmobile forces used should be large enough to seize assigned objectives without need for subsequent lifts into an objective area. Multiple routes should be used and an altitude should be selected which will reduce exposure to ground fires. Every effort should be made to avoid flying over an organized enemy position. Alternate flight routes, landing zones, and objective areas should be planned for and used as

the situation demands. When practical, plans should provide for the use of screening smoke to cover the activities of an airmobile force. Once an objective area has been seized, the landing zone may be expanded rapidly through the use of succeeding airlifts. Areas may be cleared of obstacles to accommodate helicopters and other troop-carrying aircraft. Airmobile reserve forces are held in readiness to rapidly reinforce or to exploit a penetration, or to pursue the enemy force. Once an objective has been seized and the enemy neutralized or destroyed, an airmobile force may be withdrawn and used to seize additional objectives. Plans should also provide for extraction of an airmobile force, to support the overall scheme of maneuver. Extraction should not be attempted while units are under heavy enemy fire.

c. Penetration. An airmobile force can assist a ground force in achieving penetration(s) when conditions are favorable by executing airmobile envelopments of defensive positions.

d. Attack of a Riverline.

(1) Airmobile reconnaissance forces are used early in the approach to a river to determine enemy strength and dispositions and to locate crossing sites. If possible, airmobile forces seize a bridgehead before the enemy can position his force and prepare his defense. Since a river is not an obstacle to airmobile forces, the enemy may have to reduce the strength of his riverline to protect his rear area.

(2) Airmobile forces seize objectives that dominate the ground forces' crossing sites. They should be on their objectives early enough to warn of counterattacking enemy forces and to prevent interference with the crossing of friendly forces. The principles that are included in paragraph *b* above apply equally well to an attack of a riverline. It is to be expected, however, that logistical planning will be of an even larger magnitude in that the airmobile force may be cut off from its logistical base for a longer period of time.

e. Exploitation. An airmobile force is ideally suited to exploitation. The commander can rapidly develop the situation when aggressive small-unit action is required and can hinder, delay, and block a larger enemy force for destruction by a force conducting the main attack. The diversity and mobility of an airmobile force enables the commander to rapidly mass combat power to aggressively exploit the situation to maximum advantage.

f. Pursuit. The commander of a pursuit force can maintain or rapidly regain lost contact with the enemy by using airmobile forces. Airmobile forces can conduct multiple attacks to destroy isolated enemy forces and to disrupt the withdrawal of enemy units. Attacks made in conjunction with ground forces are coordinated to cut off fleeing enemy forces; thus, speed and accuracy of movement and landing are more important than secrecy. The application of aerial reconnaissance and surveillance will provide timely information on the location of the enemy and contribute to the surprise with which such attacks are accomplished. When operations are conducted over extended distances, communication and logistical support require special consideration.

Section III. DEFENSIVE AND RETROGRADE OPERATIONS

4–5. Forms of Defense

a. General. The commander of an airmobile force can provide a means of defense in either of two forms: area or mobile defense. Frequently, the two forms overlap; however, an airmobile force can move more rapidly than a ground force. This advantage suits the airmobile force to a mobile defense.

b. Defense Against Airborne, Airmobile, Guerrilla, and Infiltration Attack.

(1) Airmobile forces may be employed effectively to counter an enemy air-

borne, airmobile, guerrilla, and infiltration attack since airmobile forces possess equal or better mobility than the enemy forces and a greater flexibility in choice of objectives than the enemy airborne force. However, airmobile forces lack armor and are limited in organic heavy fire support. As a minimum, airmobile striking forces and airmobile reserves employed against enemy airborne, airmobile, guerrilla forces, and forces which have tactically infiltrated should be provided with heavy fire support. Airmobile forces may be employed in all phases of the antiairborne, airmobile, guerrilla, and infiltration defense. Initially, they conduct patrols and establish observation posts to locate the enemy and set up roadblocks to delay his movement. As part of the mobile reserve, they are committed when the enemy main landing or effort is determinal. They may land directly on the enemy to prevent the loss of key terrain. This type of counterattack achieves the most immediate disruption of enemy plans.

(2) Armed helicopters employed with airmobile forces are particularly effective against airborne, airmobile, guerrilla, and infiltrator forces. The lack of armor and heavy fire support of these enemy forces can be exploited by the use of armed helicopters against them. Medium and heavy helicopters may be used to position and displace artillery to be used in support of the operation.

c. Delaying Action. An airmobile force conducting a delaying action can use terrain and time to maximum advantage and can break contact rapidly. Reconnaissance and surveillance elements provide information on the location of enemy attacking units. Since the withdrawal of airmobile forces does not require use of a road net, the forces can be employed in flanking positions adjacent to the enemy route of advance, forcing the enemy to pause and deploy before continuing his advance. Such a maneuver may be integrated with an action on a delaying position, astride the enemy route of advance, or with a covering force action between positions. Obstacles may be placed in front of successive delaying positions without interfering with the withdrawal of airmobile forces from delaying positions to the front. Airmobile forces are also effective in delaying actions as security elements and mobile reserves. Small airmobile units and armed helicopters are suited for harassing actions between successive positions.

d. Withdrawal from Action.

(1) A withdrawal may be executed either under heavy enemy pressure or without enemy pressure. During airmobile operations, a withdrawal is termed an extraction. When the terrain is such that the enemy has the capability to resist, an extraction is a complex operation which requires highly coordinated planning. This operation may require the use of high-angle artillery fire on enemy positions to allow armed aircraft and lift aircraft to simultaneously conduct their respective missions while flying under artillery fire. During an extraction, intermediate secured assembly areas may be established. Turnaround time of helicopters is reduced and more troops can be extracted faster. Troops in intermediate assembly areas can be picked up and lifted to base areas at a later time after helicopters have refueled. If the extraction requires shuttling, the maximum number of troops should be left in the landing zone to be extracted on the last turnaround. This will provide the maximum security to the last elements extracted. All elements of the unit which are not part of the security force should be prepared for extraction by tactically assembling in plane loads prior to arrival of aircraft. When only the security force remains on the ground, the last flight should land as close as practicable to the security ele-

ments to expedite loading and departure. (See fig. 4–1 and 4–2 for type extraction plan.) The composition of this force will be determined by the number of lift aircraft available. This procedure may not be applicable when the enemy force has a nuclear capability.

(2) Withdrawals through friendly forces are conducted by overflying the newly established positions. Coordination must be accomplished with the overflown force, and provisions must be made for use of smoke, air-to-ground fires, and deceptive measures. In the daylight withdrawal, aircraft may be used to extract frontline units after they have closed into assigned assembly areas behind the local covering forces. In the night withdrawal when secrecy is required, the use of aircraft may be limited to extracting the detachments left in contact after the main force has successfully broken contact and moved to the rear. Elements of the detachments left in contact that cannot be withdrawn by aircraft are withdrawn simultaneously on the ground. Some fire support elements remain in position long enough to cover the withdrawal unless it can be covered by fire from the next position to the rear. Additional fire support can be gained by the use of armed helicopters. Positive control of aircraft and ground fire support elements is absolutely essential during withdrawal operations.

e. Retirement. Airmobile forces are used with a retiring force in a manner similar to that used in a movement to contact (para 4–2). The retiring force moves to the rear in multiple columns; airmobile patrols maintain contact between the columns. Airmobile security forces are used as rear and flank guards. Armed aircraft are employed to harass and delay the enemy within their capabilities.

f. Counterattack. An airmobile reserve force gives the commander the capability of rapidly moving forces to block or destroy enemy penetrations. Airmobile reserves may be dispersed in positions farther from the line of contact than reserves that depend on surface transport. Airmobile reserves of adjacent units may be massed to meet a penetration in a particular unit's area before the enemy can exploit a penetration. Coordination is essential with fire support units and other ground and airmobile units participating in a counterattack. Counterattacks should be rehearsed. Flight routes for counterattacking airmobile forces should be selected to avoid enemy detection and to interfere least with friendly supporting fires.

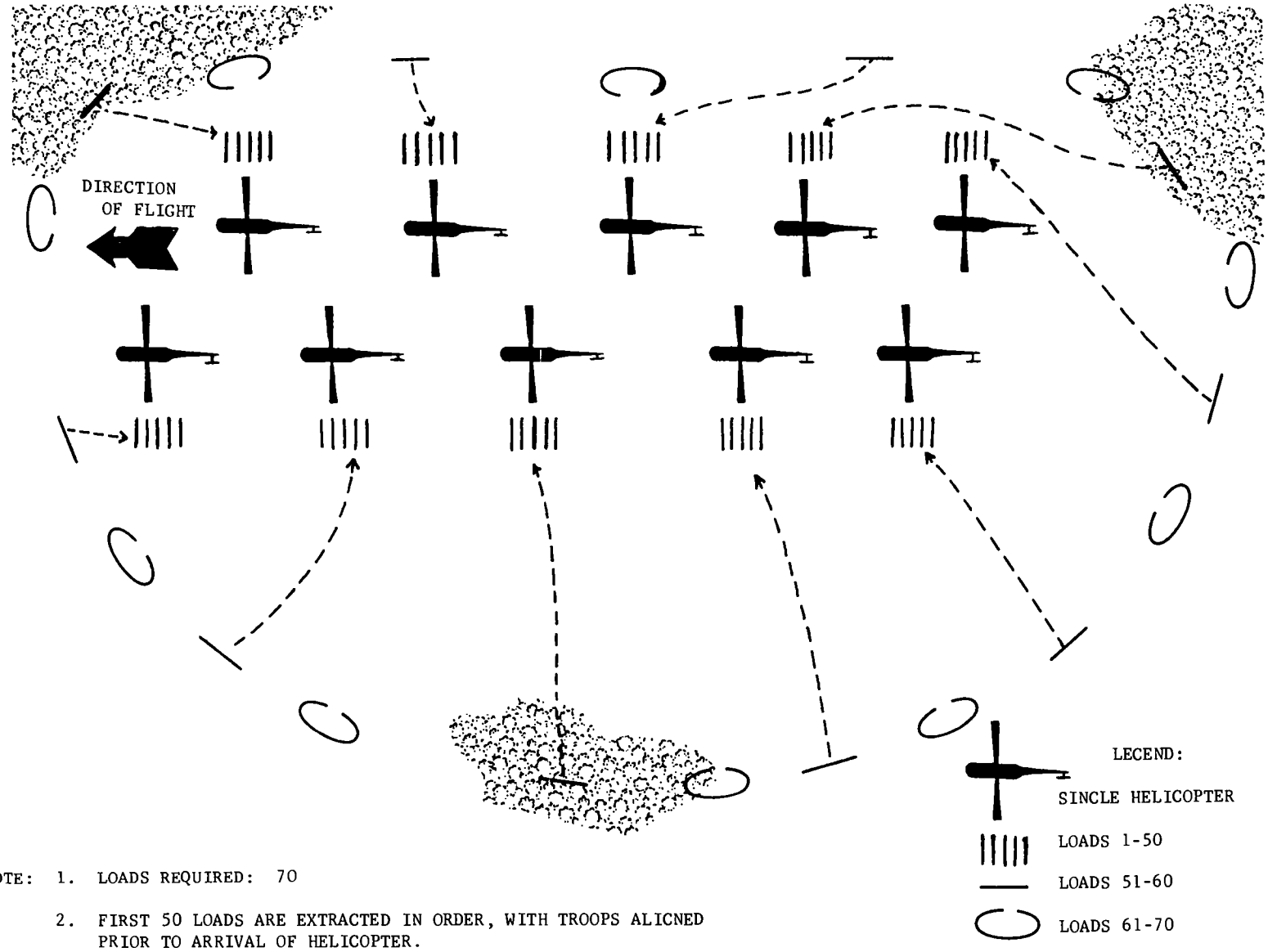
g. Relief of Frontline Units.

(1) In a relief operation, Army aircraft can transport incoming units to positions and withdraw outgoing units on the return trip. The outgoing units should mark landing sites. When demonstrations and feints are employed to mask a relief, aviation support priorities should be established for incoming and outgoing units. The gound force headquarters directing the relief should retain control of the aircraft to avoid a change of control between the incoming and outgoing units.

(2) In conducting a relief with airmobile forces, coordination and communication must be accomplished with friendly forces. Screening smoke, air-to-ground fire, high-angle artillery fires, and deceptive measures are used to assist in accomplishing the relief.

4–6. Subsequent Operations

Following the seizure of an objective area, an airmobile force may defend, link up with a surface force, or conduct retrograde operations. Because an airmobile force can be readily reassembled and reorganized, it can provide the commander with an available reserve force.



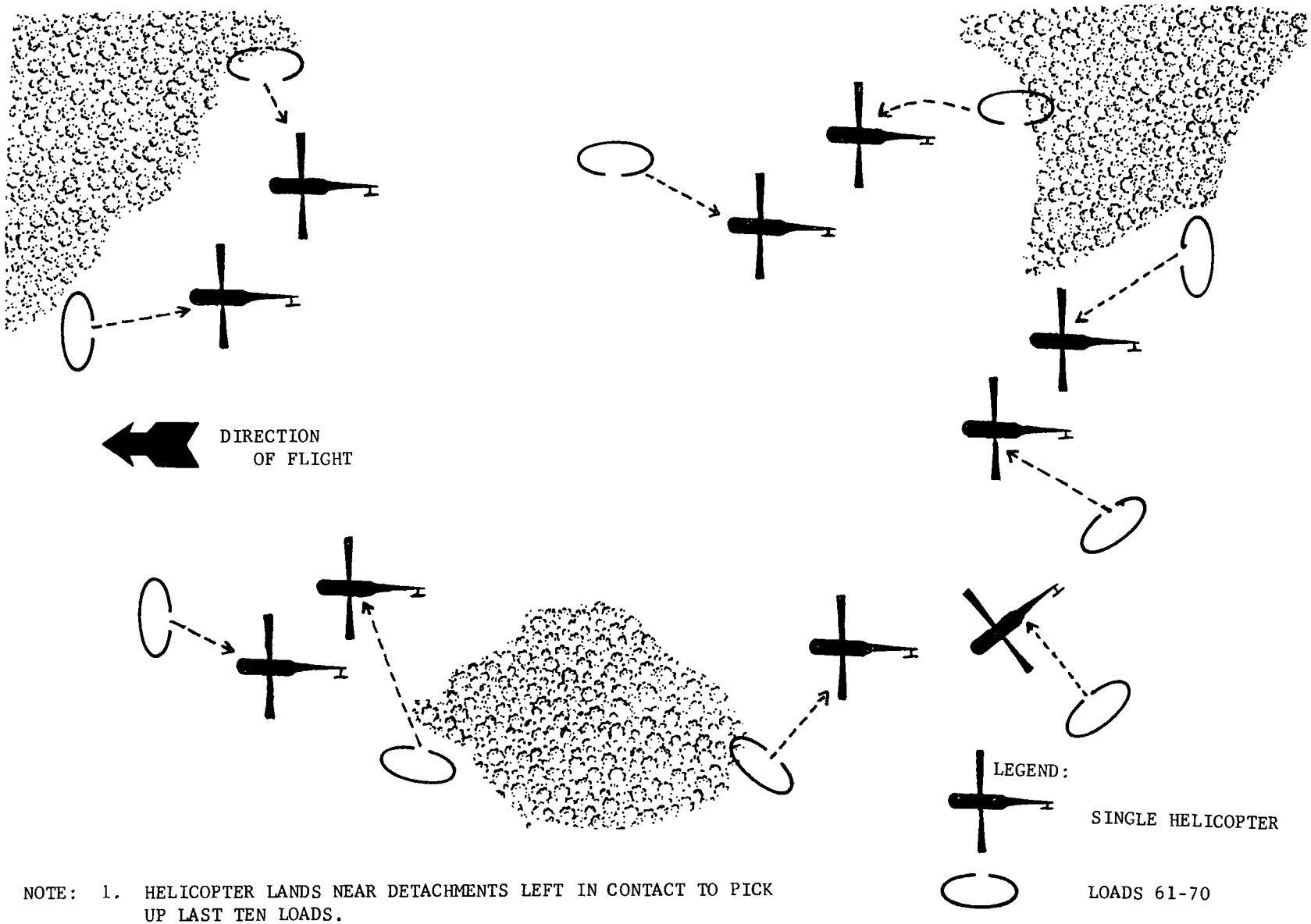
NOTE: 1. LOADS REQUIRED: 70

2. FIRST 50 LOADS ARE EXTRACTED IN ORDER, WITH TROOPS ALICNED PRIOR TO ARRIVAL OF HELICOPTER.

3. LOADS 51-60 ARE DRAWN TO CENTER OF LZ AND EXTRACTED.

4. DETACHMENTS LEFT IN CONTACT - SEE FIGURE 4-2.

Figure 4–1. Type extraction plan.



NOTE: 1. HELICOPTER LANDS NEAR DETACHMENTS LEFT IN CONTACT TO PICK UP LAST TEN LOADS.

2. IF THE SITUATION PERMITS, LAST TEN LOADS MAY BE DRAWN TO THE CENTER OF THE LZ AND PICKED UP THERE.

Figure 4-2. Type extraction plan (detachments left in contact).

Section IV. EMPLOYMENT WITH AMPHIBIOUS OPERATIONS

4–7. General

An airmobile unit's capability to seize deep objectives, unhindered by hydrography, obstacles, and terrain, provides an amphibious force with formidable offensive combat power. Special requirements for employment are assault ships with helicopter landing and take-off platforms from which to provide troop, equipment, and supply transport from the embarkation point to the vicinity of the objective area; and training and rehearsals for embarkation, operations aboard, and debarkation from assault ships. Doctrine for amphibious operations is contained in FM 31–11 and FM 31–12.

4–8. Responsibilities

a. The amphibious task force commander is responsible for the entire force and for the conduct of the operation until command is transferred to the ground commander.

b. The landing force commander commands all troop components within the amphibious task force. He is responsible for the landing force's operations ashore and for the security of all personnel and installations located within his area of operations.

4–9. Planning Considerations

a. Airmobile operations from assault ships are characterized by concurrent, parallel, and detailed planning by all participating forces.

b. Intelligence planning is begun when the mission is received.

c. Prior to embarkation, an advance echelon from each unit goes aboard to make final arrangements. Each echelon coordinates its unit embarkation plan with the ship's officers.

d. Embarkation planning covers the orderly assembly of personnel, materiel, and assigned ships in a sequence designed to meet the requirements of the landing scheme of maneuver. Detailed plans must be made for—

(1) Flight deck procedures.
(2) Facilities and space available for aircraft, troops, and equipment.
(3) Hangar deck procedures.
(4) Carrier qualification criteria for aviators.
(5) Launch and recovery procedures.
(6) Carrier landing pattern.

4–10. Liaison

Upon receipt of a directive to plan or to participate in an amphibious operation, airmobile force and aviation mission commanders immediately exchange liaison officers with naval units concerned. The liaison officers act as advisors and coordinators on all matters of common interest.

4–11. Training

Flight operations aboard assault ships require precision and teamwork among all elements involved. To achieve the desired proficiency airmobile task force personnel must receive the following training:

a. Flight personnel of the Army aviation unit must be trained in all phases of flight, hangar, and deck operations prior to shipboard operations.

b. Troops from the airlifted force must be familiarized with shipboard procedures before going aboard.

Section V. SPECIAL OPERATIONS

4–12. Raids

a. General. An airmobile raid is conducted for the same purpose as a ground force raid—to accomplish a specific mission with no intent of holding the area. It can be conducted to harass, deceive, or disrupt the enemy to preclude or deter his concentration of forces in another area. It can also be conducted to obtain information of enemy installations, units, or activities, and to capture personnel or materiel. Through raids, airmobile forces are capable of achieving extensive harassment and

destruction in the enemy rear. A raid is characterized by rapid movement to gain surprise, and rapid withdrawal to avoid decisive engagement.

b. Missions and Objectives. An airmobile raid force may be assigned an area of operations instead of a specific objective, and the area objectives may be located well to the rear in enemy territory or relatively close to the forward edge of the battle area. The force may operate in conjunction with friendly guerrilla forces. Some raid objectives are—

(1) Command posts.

(2) Communications centers.

(3) Airfields and their installations.

(4) Key enemy personnel.

(5) Supply installations.

(6) Nuclear, chemical, and biological weapons delivery means and storage areas.

(7) Prisoner-of-war compounds.

(8) Other targets of intelligence interest.

c. Planning and Preparation. The steps in planning and preparing for a raid closely parallel those required for the airmobile assault. The following aspects of planning and preparation must be emphasized:

(1) Detailed intelligence is essential.

(2) Concept and execution are characterized by boldness.

(3) Deception and counterintelligence plans are made.

(4) Technically trained and specially skilled personnel may be needed to assist in accomplishing the mission.

(5) Special weapons or equipment may also be required.

(6) Movement should be planned to insure delivery of the raid force with minimum risk of detection.

(7) Coordination with other services or agencies must be thorough.

(8) To enhance security, the raid should, if possible, be carried out under some condition of reduced visibility, with Army pathfinders providing positive terminal guidance into, within, and from the objective area. This, however, does not preclude a daylight raid. In all circumstances, positive aircraft control is essential.

(9) The raid should be rehearsed.

(10) Fire support should be provided.

(11) Elements of the raiding force assemble independently and carry out their assigned tasks. Decentralization of the elements of the force is a requirement.

(12) Provisions should be made for the transport of prisoners and captured materiel.

(13) When possible, withdrawals are made by air. Alternate withdrawal plans must be included within the overall plan.

(14) Normally, the raiding force carries all supplies and equipment necessary to accomplish the mission. Resupply, when required, may be made by airdrop directly to the raiding force or through friendly paramilitary forces.

(15) Coordination of a raid must be effected with those headquarters that operate long-range patrols (LRP) to insure that the raiding party and an LRP operation do not conflict in time or space and to insure that one element's operations will not compromise the existence of the other element within the same general geographical area.

d. For additional information on planning raids in conjunction with friendly guerrilla forces, see FM 31–21.

4–13. Infiltration

Infiltration airmobile forces are used in tactical infiltration either as the main or supporting attack forces. For a detailed discussion of planning an airmobile tactical infiltration, see FM 7–20.

4–14. Linkup

a. General. When withdrawal of an airmobile force from the objective area is not planned or feasible, a linkup operation by a surface force is accomplished. Close coordination and detailed planning between the two forces are essential. Initial coordination may be limited to an exchange of information. As the linkup force approaches the objective area, fires are coordinated by standard fire control measures and procedures. As the situation develops, objectives and axes or boundaries of the advancing friendly forces are changed to facilitate the linkup. When necessary, elements of the airmobile force take offensive action to break roadblocks and to otherwise disrupt enemy forces delaying the linkup force. Armed aircraft may assist in these actions.

b. Planning for Linkup. Plans for the meeting of the airmobile force and advancing friendly ground forces are coordinated in advance. This coordination should include—

(1) Command relationship.

(2) Command and staff liaison before and during the operation.

(3) Systems of mutual recognition (panels, armbands, pyrotechnics, vehicle markings).

(4) Coordination of communications plans (radio nets established, exchange of call signs and frequencies, and issue or loan of compatible radio equipment).

(5) Coordination of schemes of maneuver (designation of primary and alternate linkup points, and delineation of objectives and boundaries or axes of advance).

(6) Fire control measures, with emphasis on the fire coordination line and no-fire line.

(7) Plans for air-to-ground fires.

(8) The airmobile force, when possible, assists the advancing linkup forces by providing guides and removing obstacles.

(9) Supply and maintenance upon linkup.

c. Linkup with Friendly Guerrilla Forces. When offensive operations push toward an unconventional warfare operational area (UWOA) or when a UWOA expands toward the friendly FEBA, airmobile operations may be mounted to link up with these forces. Such operations may be used to consolidate the guerrilla force position, resupply and reinforce the force, and evacuate wounded. For additional information on guerrilla warfare operations, see FM 31–20 and FM 31–21.

4–15. Operations Against Infiltration and Guerrilla Action

a. Airmobile forces are particularly suited to strike operations against insurgent forces who may be conducting guerrilla warfare or war of movement operations. Reconnaissance aircraft are employed to locate insurgent forces, and airmobile patrols followup by investigating suspicious localities and attacking to destroy or capture the insurgents discovered. These airmobile combat patrols can patrol extensive areas, and centrally located reserves can be called in to reinforce the airmobile combat patrols.

b. Airmobile forces exploit their mobility by attacking insurgent base areas located in difficult terrain. During encircling operations, airmobile forces may be used to block otherwise unsecured routes of withdrawal and to pursue fleeing insurgent forces. Extensive night operations should be conducted to disrupt insurgent activities and to dispel the belief that the insurgent dominates the night. To avoid ambush, techniques of surveillance and operations should vary to preclude developing patterns.

c. In an internal defense and internal development environment, PSYOP and civil affairs operations, especially military civic action such as medical civic action programs, should be employed in conjunction with all tactical operations. Additionally, airmobile operations plans must provide for the evacuation of sick and wounded civilians, the evacuation of refugees, and the resupply of food, clothing, and medicine to assist the population which re-

mains in the area of operations. Care must be taken in the use of firepower to preclude endangering the life and property of noncombatants.

d. Considered actions in operations against infiltration and guerrilla action include—

(1) Intelligence must be timely and accurate.

(2) Landing zones selected should be on or close to objectives, and because security may prevent extensive reconnaissance, landing zones may have to be mutually selected by ground and flight commanders upon arrival in the objective area.

(3) The use of multiple lifts and repeated use of the same approach and departure routes should be avoided.

(4) Armed helicopters provide escort and can deliver fires in the flanks and rear of the objective during the critical landing period.

(5) Spare aircraft should be provided to replace maintenance losses.

(6) Nonessential equipment and fixtures should be removed from aircraft, as climate and missions permit, to increase lift.

(7) A reaction force may be airborne on station to provide an immediate reserve capability.

e. Frequently, counterguerrilla strike operations require the use of airmobile forces in conjunction with civil affairs operations. Airmobile forces can organize and execute the evacuation of civilians and food supplies and provide rations, medicine, water, and other items to assist the population that remains in the area of operations. For further discussion of civil affairs operations, see FM 41–10.

f. For information pertaining to the use of riot-control agents in counterguerrilla operations, see TC 3–16.

4–16. Night Operations

See paragraph 2–9.

4–17. Operations Under Nuclear Warfare Conditions

a. General. Airmobile forces can concentrate rapidly after being dispersed for protection from the effects of nuclear weapons. Airmobile patrols can investigate a nuclear target soon after the explosion to determine the nuclear effects and to conduct radiological survey.

b. Exploitation of Nuclear Strikes. Airmobile forces can bypass obstacles created by a nuclear strike, whether their objective is within or beyond the target area.

c. Defense Against Enemy Use. In the event of enemy nuclear attack, airmobile forces move into the target area after the explosion (and after some degree of survey is made to determine residual effect) to forestall enemy exploitation of its effect. They can also promptly remove surviving patients from the target area to medical installations.

d. Special Considerations. Plans for timing airmobile operations with nuclear explosions must take into account the effect of the intense light on aviators' eyes, the distance from ground zero for safety from primary effects, and the length of time residual radiation will be at dangerous levels. The danger of fallout in the case of a surface burst is considered when selecting approach routes and landing zones. Some landing zones can be made unusable by debris resulting from a nuclear explosion. Where a landing zone is contaminated, dust stirred up by propellers or rotors may be hazardous. Alternate plans are prepared in the event residual radiation dose rates are high in primary routes and landing zones. Air corridors may well offer paths of little or no radiation. Pathfinders are trained and equipped to conduct radiological surveys from the air, and should be employed to seek alternate routes and landing zones with acceptable radiation risk. Aerial surveillance units are also trained and equipped to conduct radiological surveys.

4–18. Operations in a Toxic Environment

a. Planning for airmobile operations in a

toxic environment must include consideration of the following:

(1) Reconnaissance for areas known or suspected to be contaminated.
(2) Selection of routes and positions with regard to contaminated areas.
(3) Protection of supplies and equipment.
(4) Special considerations for operating in toxic environments.

b. For details, see FM 3–10 and FM 21–40.

4–19. Counterairborne/Airmobile/Guerrilla and Infiltration Activities in Rear Areas

Plans should be made to organize and prepare airmobile operations to counter enemy airborne and airmobile operations which strike in rear areas. Airmobile forces should be organized to conduct counterguerrilla operations in rear areas.

CHAPTER 5

TRAINING

Section I. RESPONSIBILITIES

5–1. General

The training of aviation and ground combat units for airmobile operations is the responsibility of commanders at all echelons. The objective is to familiarize units with all aspects of airmobile operations and enable them to develop and implement SOP which will insure that effective airmobile operations are conducted with maximum speed, flexibility, and timeliness.

5–2. Major Unit Commanders

Major unit commanders are responsible for aviation unit training and combined training with ground combat forces. They insure that the following requirements are fulfilled:

a. Training of staffs at all levels in planning for and conducting airmobile operations.

b. Training of combat service support units and nondivisional aviation units in appropriate subjects in the conduct of support for airmobile operations.

c. Training of nondivisional combat and combat support units in the conduct of airmobile operations.

d. Support of airmobile training by aviation combat service support, and combat and combat support units.

5–3. Ground Force Commanders

Commanders at all echelons that participate in airmobile operations should insure that troop training includes the following: Working knowledge of Army aircraft, troop flight safety procedures, preparation and loading of equipment for internal and external transport; familiarization with aerial weapons systems employment and how to control this fire support; terminal guidance techniques, techniques of assembly and reorganization; rappelling and trooper ladder operations; air movement; and conduct of airmobile operations.

5–4. Army Aviation Unit Commanders

Army aviation unit commanders are responsible for individual proficiency within their organizations and for training their units in the following procedures: Teamwork with the supporting arms and services; the employment of aerial weapons systems; low-level and nap-of-the-earth navigation; formation flying at night and under other conditions of reduced visibility; camouflage and security of aircraft; unit control of aircraft; air traffic control; rappelling and trooper ladder operations; sling load operations; pathfinder techniques; and confined area operations with maximum internal and external loads.

Section II. CONDUCT OF TRAINING

5–5. General

a. Air movement training is integrated into appropriate current unit training programs. The purpose of training is to develop the capability for conducting airmobile operations at each level from squad to the brigade. Individual and unit airmobile training are conducted when feasible. Combined unit training is integrated into tactical training of successively larger units. In preparation for an airmobile operation, ground and aviation units should train together. Joint training of ground and

aviation elements and improvements in procedures will result in a high level of readiness.

b. Airmobile training begins by training personnel of small units in the techniques and procedures peculiar to airmobile operations. Proficiency in these techniques and procedures provides a foundation for the combined training of small ground combat units and their support. Aircraft organic to division and brigade are used in support of squad, platoon, and company training. The necessary Army aircraft support for large-scale airmobile operations is provided by the aviation battalions assigned to field army for field exercises and maneuvers. Field exercises and maneuvers should include airmobile operations.

5–6. Ground Force Training

Ground combat forces that are to participate in airmobile operations must be proficient in ground tactical operations and must obtain maximum combat efficiency.

5–7. Individual and Unit Training

The following subjects should be included in appropriate phases of individual and unit training:

a. Ground Combat Units.

(1) Subjects required for attainment of maximum proficiency in ground combat skills.
(2) Methods and techniques of assembly and reorganization.
(3) Psychological preparedness.
(4) Methods and procedures for control and guidance of aircraft.
(5) Aircraft and flight safety.
(6) Aircraft aerial weapons systems and control of armed helicopter strikes.
(7) Close air support.
(8) Subjects required for attainment of proficiency in rigging for external loading of organizational equipment.

b. Aviation Units.

(1) Working knowledge of operational planning.
(2) Low-level navigation and nap-of-the-earth flying.
(3) Formation flying (day, night, and reduced visibility conditions).
(4) Camouflage and security of aircraft.
(5) Employment of aerial weapons systems.
(6) Unit control of aircraft.
(7) Air traffic control and pathfinder techniques.
(8) Confined-area operations and maximum loads.
(9) Aerial surveillance capabilities and limitations.
(10) External loads.

c. Subjects Common to Aviation and Ground Combat Units.

(1) Conduct of liaison and coordination.
(2) Selection, organization, and operation of loading areas and landing areas.
(3) Working knowledge of pathfinder techniques.
(4) Techniques of loading, lashing, and unloading internal and external loads.
(5) Air resupply techniques.
(6) Forward area refueling techniques.
(7) Air and ground communications.
(8) Air movement control and coordination with appropriate air defense agencies.
(9) Special measures for antitank defense.
(10) Stating requirements for fire support to include aerial fire support.
(11) Training in defense against nuclear, chemical, and biological weapons.
(12) Training in employment of chemical agents.
(13) Call for and adjustment of field artillery.

5–8. Staff Training

Staffs of both ground and aviation elements must be trained in planning and conducting airmobile operations with emphasis on the following:

a. Reverse planning sequence.
b. Stating requirements for fire support.
c. Aerial supply and evacuation procedures.
d. Development of detailed SOP.
e. Command and staff relationships.

f. Aerial reconnaissance and surveillance support planning.

5–9. Combined Training

The combined training of ground combat units and their support elements is emphasized at all levels of command to insure that all units involved develop the capability for the skillful application of airmobile concepts. A program of progressive, integrated, combined airmobile training, starting with the squad and continuing to the battalion or larger unit, is directed toward acquiring the capability to execute effective airmobile operations in a minimum of time and on brief orders.

5–10. Sequence of Training

The following training sequence for the conduct of airmobile operations is recommended:

a. Orientation of commanders and senior staff officers.

b. Instruction and practical exercise by troops in loading and unloading personnel and equipment; instruction in assembly techniques and troop safety.

c. Specialist training of selected personnel in air traffic control and marking of loading areas and landing areas, and in the use of pallets and the preparation of bulk supplies and equipment for airdrop.

Section III. REHEARSALS

5–11. General

Rehearsals conducted with the Army aviation crews should include troops and equipment to be moved on the airmobile operation. Rehearsals should be staged under conditions paralleling those expected in the planned operation. Platoon to battalion level rehearsals are held as time and facilities permit. In units where airmobile operations are routine, SOP may preclude the requirement for airmobile operations rehearsals.

5–12. Specific Instruction

Security considerations, lack of adequate time and areas may limit the rehearsals or necessitate acceptance of some artificial conditions. Ideally, each rehearsal includes the following:

a. Occupying loading areas.

b. Moving to and loading aircraft at loading sites.

c. Unloading aircraft.

d. Assembly and control procedures after landing.

e. Executing the tactical plan.

f. Communication procedures.

g. Supply and evacuation procedures.

Section IV. BATTLE DRILLS AND FORMATIONS

5–13. General

The purpose of this section is to illustrate standard formations and battle drills which may be used by infantry and aviation elements as a team in the conduct of airmobile operations. These formations and drills are not the only ones which may be used. However, formations and drills should be uniform through SOP in all units. An infantry-aviation team should, by the use of a standard battle drill and voice command, be able to launch a rapid and coordinated action against an enemy threat or weakness. The battle drill simply starts the action quickly. Execution may be modified by subsequent instructions when time and circumstances permit. Standard formations and battle drills allow commanders to issue brief, explicit and definitive orders in a minimum amount of time.

5–14. Basic Formations

a. Basic separation between aircraft (fig. 5–1) is two rotor discs. In heavy left or right, number 3 aircraft will maintain approximately 5 rotor discs separation from number 1 to leave a space for number 2 to change position on number 1.

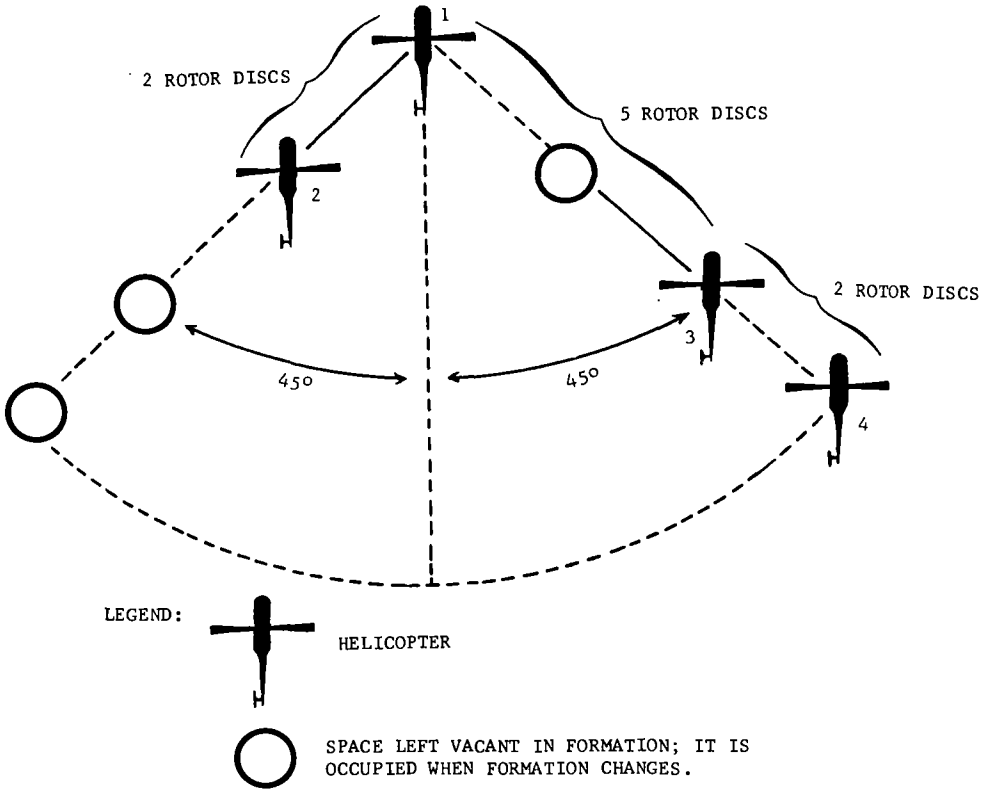


Figure 5–1. Basic separation between aircraft.

b. Arrows in figure 5–2 denote how the basic formation may be changed as desired to any of the formations on command. When only three aircraft exist in the section (as with augmented UH–1 companies), number 4 position is left vacant.

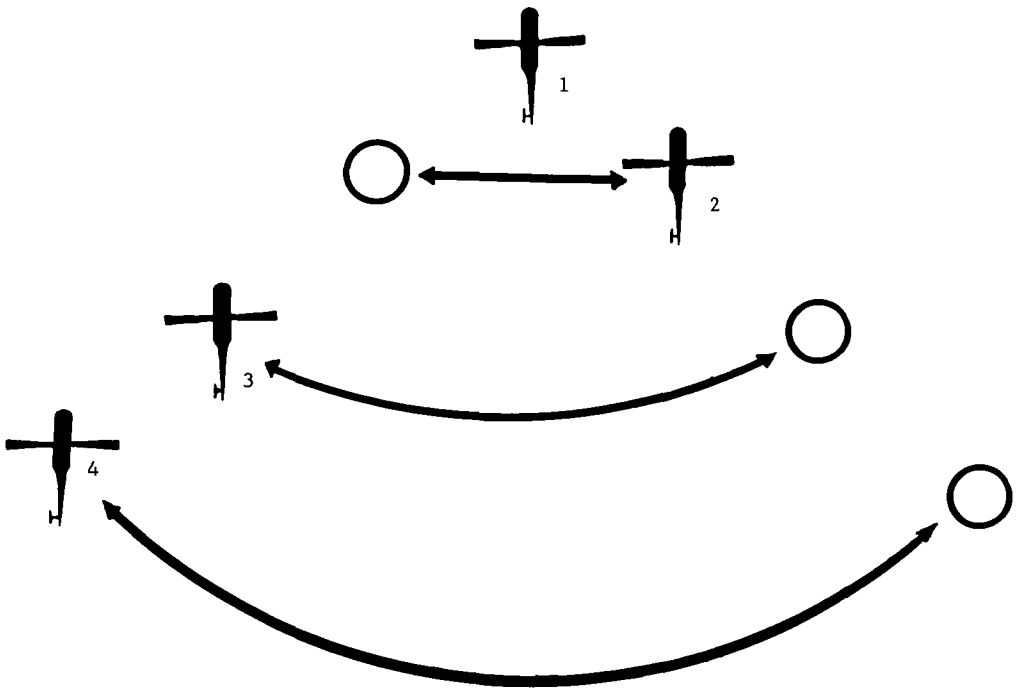
c. The heavy left or heavy right formation may be used instead of a Vee formation. The reason is to leave a space to the right (or left) of the number 2 position. This allows the number 2 aircraft or the element lateral movement, when the occasion demands, without the requirement for any other aircraft or element to change position. The reason for such lateral movement is to change formation or to avoid obstacles in low-level flight.

d. Free cruise formation is used when the aircraft must make a major change in direction (fig. 5–3). The aircraft slide temporarily toward a column formation during the turn as required and return to proper position on completion of the turn.

e. A forming turn (fig. 5–4) is executed by a formation leader to allow his element or other aircraft to join in a prescribed formation after a sequential or nonformation takeoff. After announcing his intention to the flight, the formation leader in number 1 aircraft executes a standard rate 180° turn. Number 2 begins turn when number 1 comes on a 45 angle to number 3, etc. Each element rolls out of turn in position in prescribed formation. The formation leader turns in the direction (right or left) in which he desires the heavy side of the formation (heavy left or right, or echelon left or right).

5–15. Lift Formations, UH–1

a. Formation within elements will be described by size element. (*Example:* section

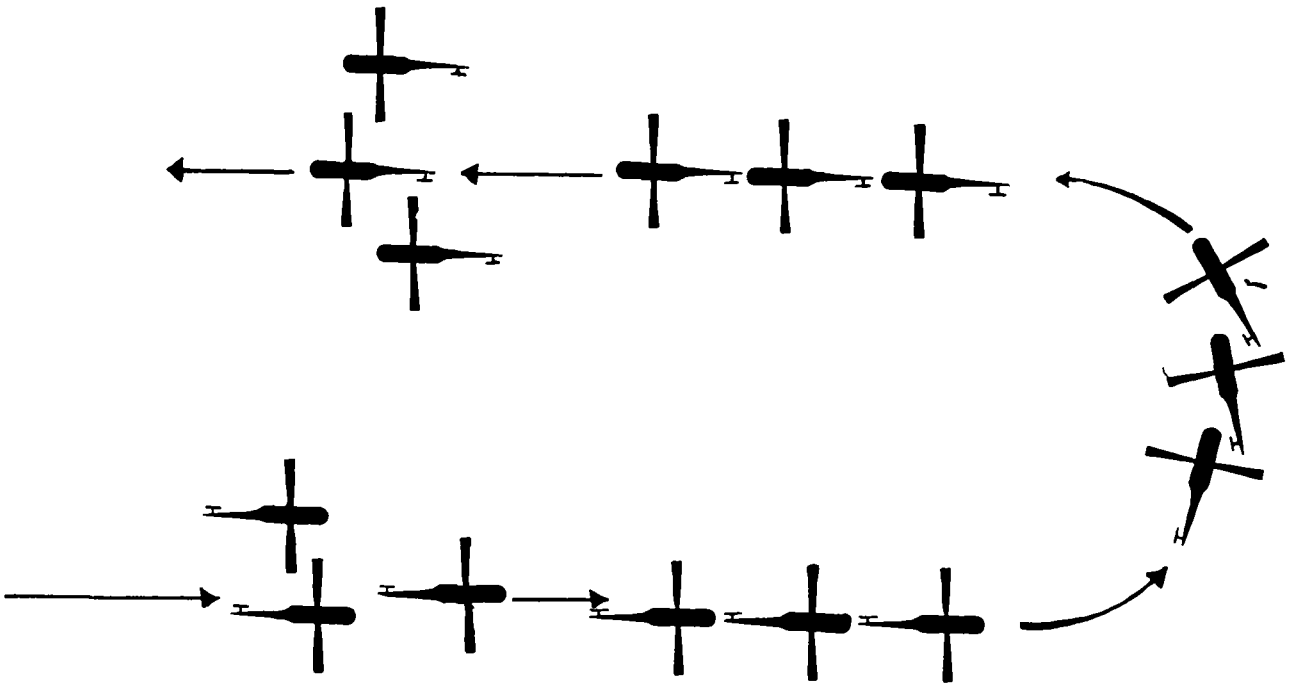


LEGEND: (See FIGURE 5-1)

Figure 5–2. Formation changes.

heavy left, platoon echelon left, company column) (see fig. 5–5). This system permits many variations within a company-size formation. Normally, the aviation mission commander prescribes the formations. The section formation is described in terms of individual aircraft. The platoon formation is described in terms of sections and the company in terms of platoons.

b. A basic principle is that formations should be as short as possible from front to rear and that elements should not follow in trail (to prevent jamming on landing). Heavy right or left or echelon formations may be used when compatible with the mission, landing zone, pickup zone, and enemy situation.



LEGEND: (See FIGURE 5-1)

Figure 5–3. Free cruise formation in changing direction.

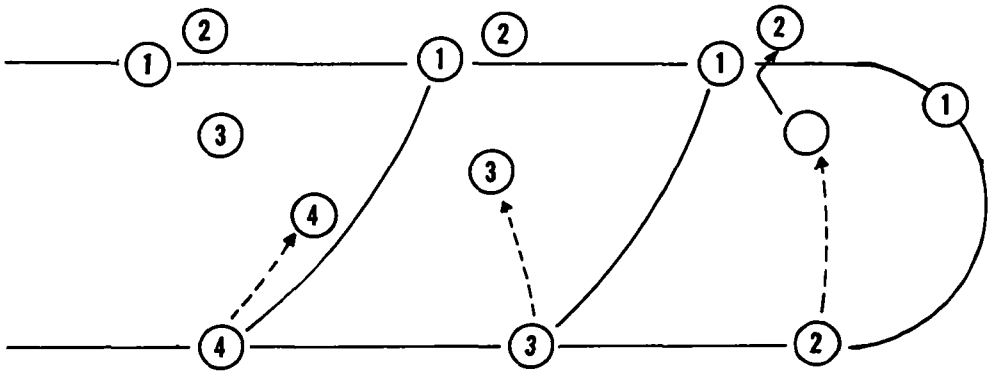


Figure 5–4. A forming turn.

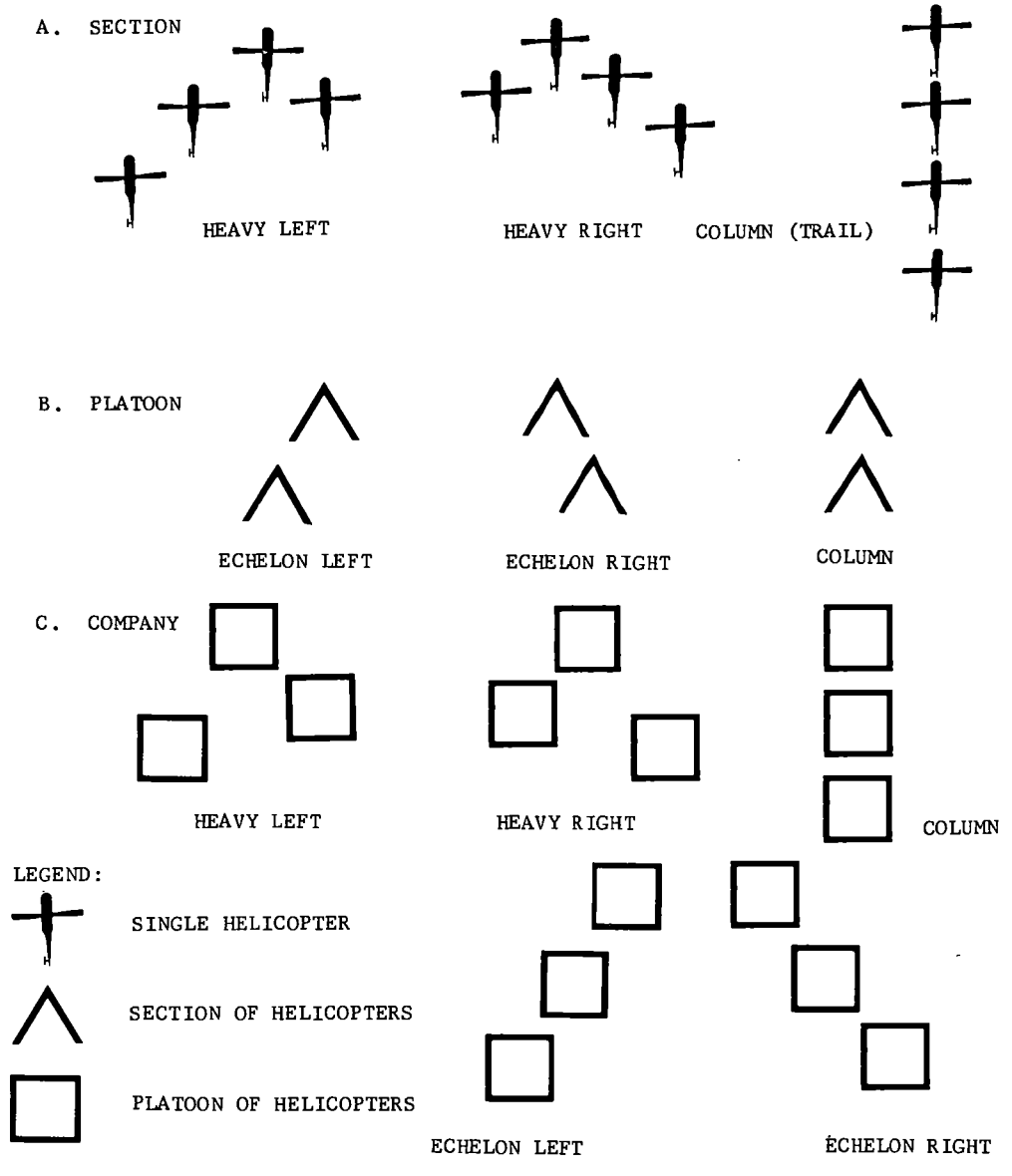


Figure 5–5. Lift formations, UH–1D.

5–16. Lift Formations, CH–47

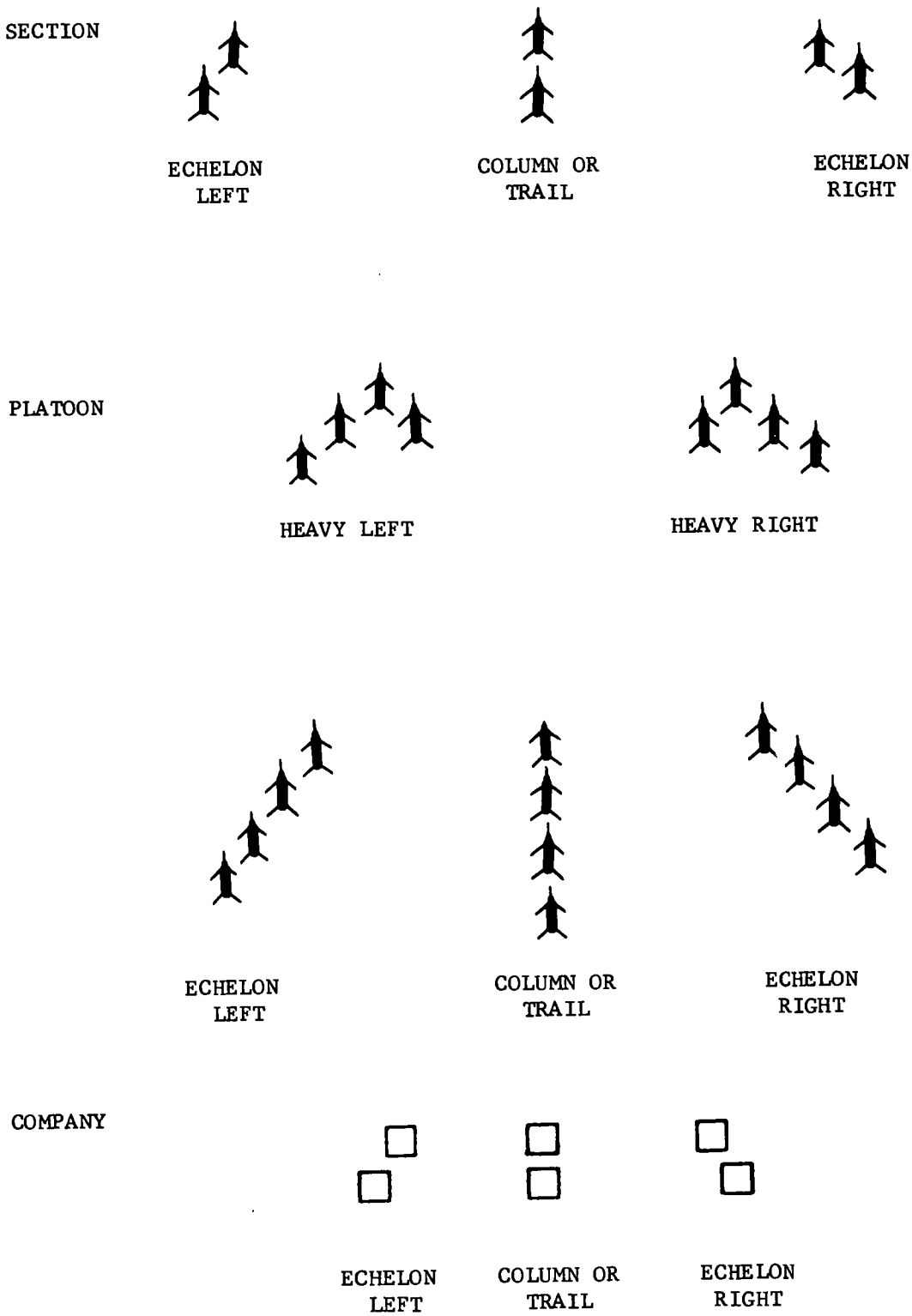
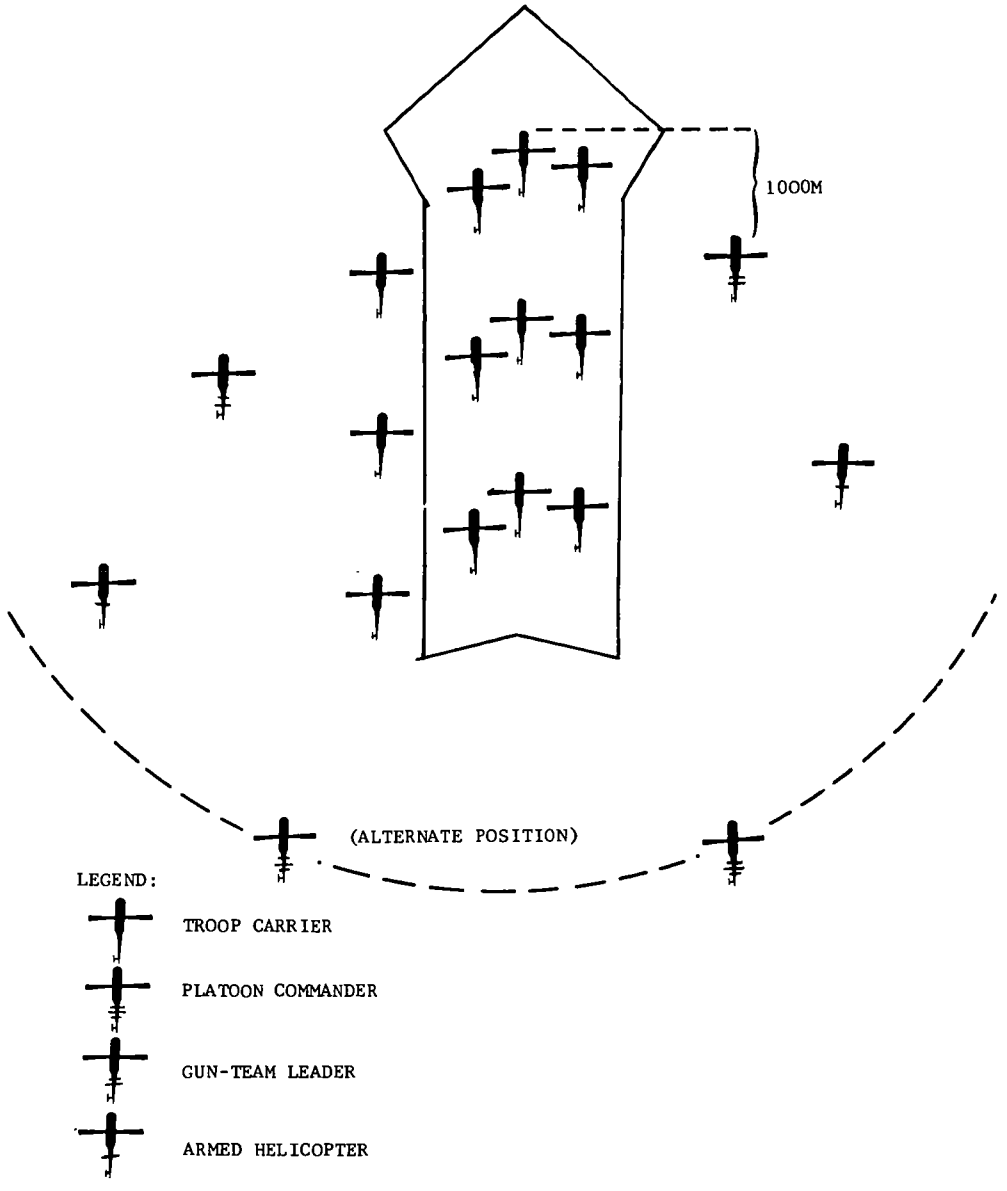


Figure 5–6. Lift formations, CH–47.

5–17. Escort Battle Drills

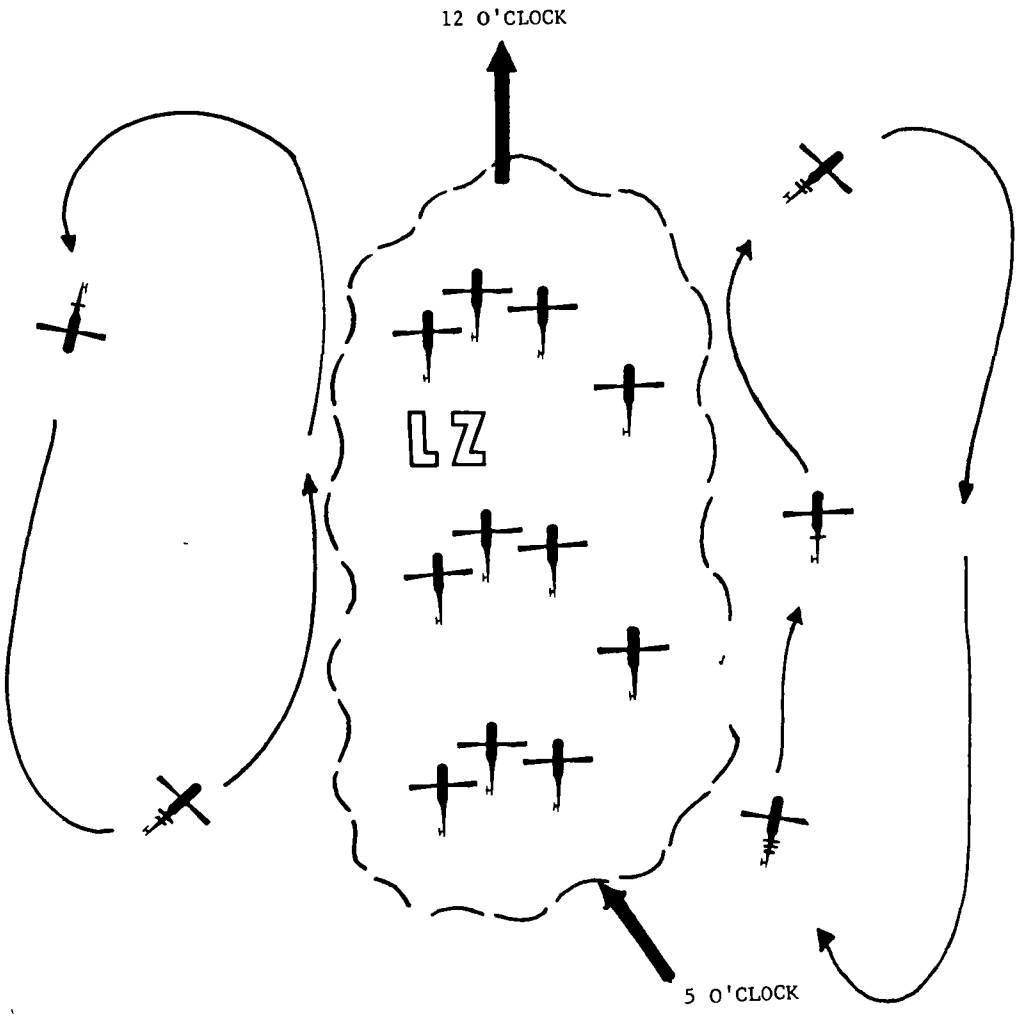
a. Armed Helicopters. See figure 5–7 for Plans A through G, described in (1) through (7) below.



Plan A—The assault group

Figure 5–7. Escort battle drills—armed helicopters.

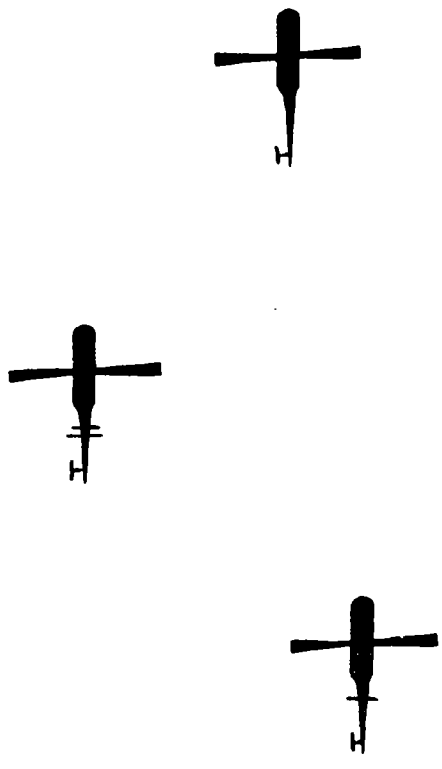
(1) *Plan A.* Armed helicopters fly on each side of the lift formation. One gun team is on each side with the platoon commander occupying a free floating position to the rear of the entire formation. The gun platoon commander moves to the most dangerous side when required, and as the lift formation approaches the LZ. He then joins the daisy chain around one side while the lift ships are on the ground. The gun teams space themselves to cover the front of the air column, and the flanks.



LEGEND: (See figure 5-7, PLAN A)

Plan B—Armed helicopter protection of landing zone
Figure 5-7—Continued.

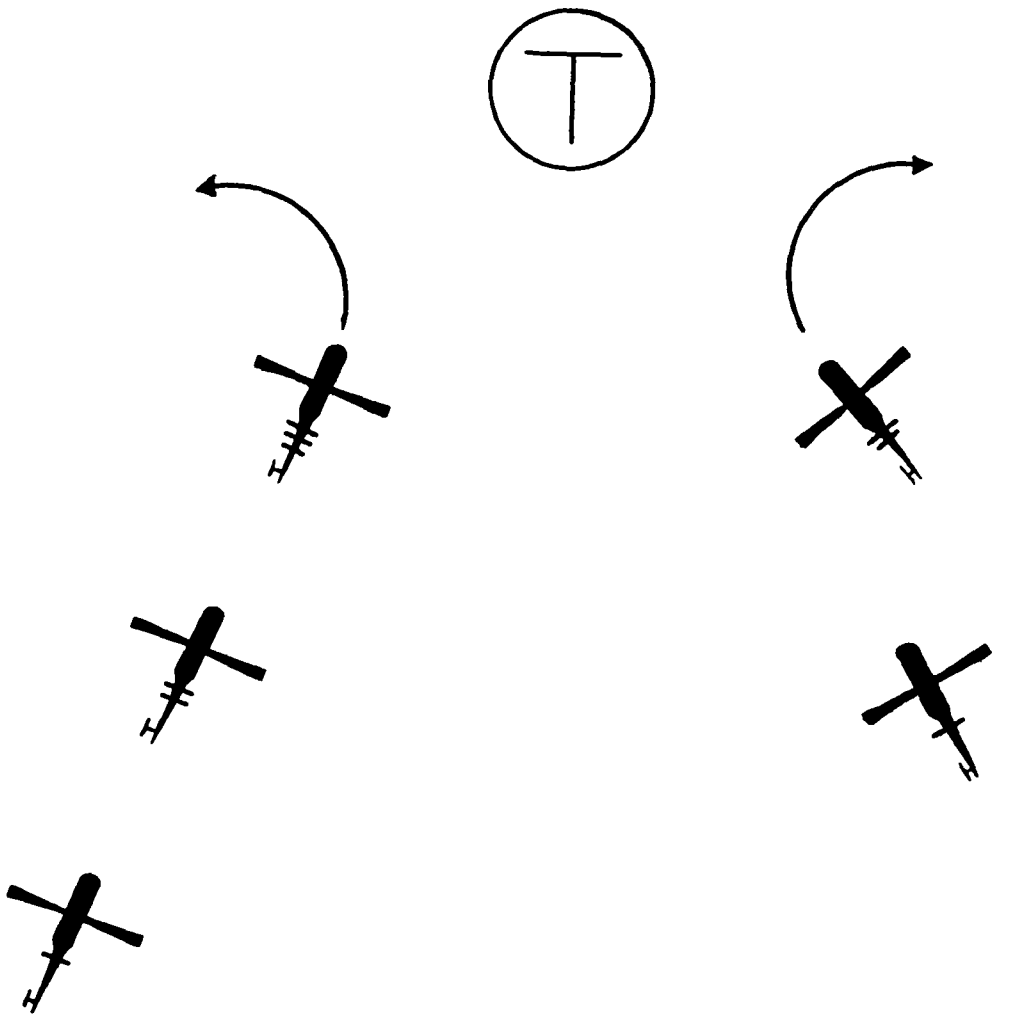
(2) *Plan B.* This formation is used when the troop carriers are on the ground in the LZ and on climb out. It enables the gun ships to maintain cruising speed, and cover the area to the front and flanks of the LZ. Ideally the lead gun ships pass abreast of the lead troop carriers just as touchdown occurs. The gun ships must space themselves so one aircraft is in position to deliver fire at all times. Normally the right fire team assumes responsibility from clock direction 11:30 to 5:30 o'clock. The left gun team assumes responsibility from 5:30 to 11:30 o'clock.



LEGEND: (See figure 5-7, PLAN A)

Plan C—Escort of a single ship
Figure 5–7—Continued.

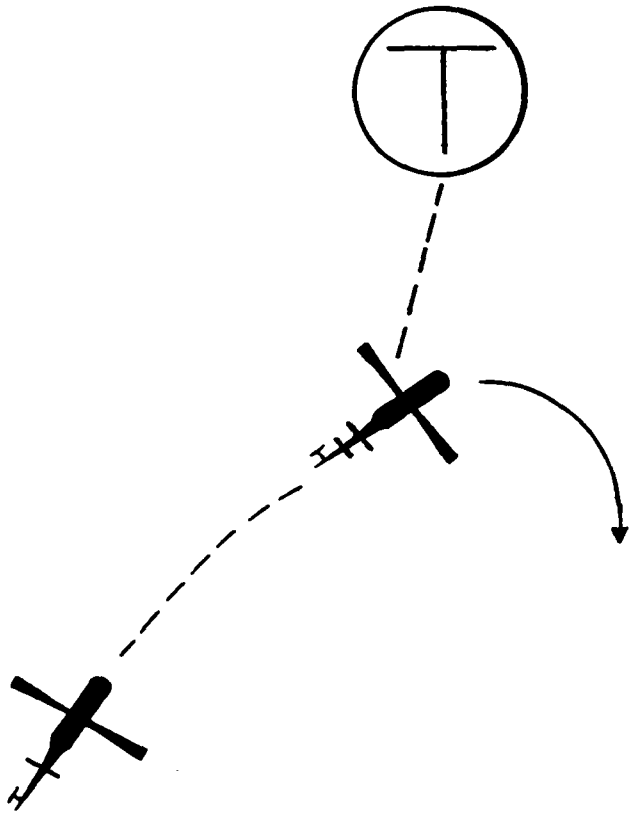
(3) *Plan C.* Single ship escort. The gun team travels behind with one gun on each side of the single ship. Upon reaching destination the guns can leave the single ship at altitude, descend to the proposed landing site, conduct a reconnaissance, recommend landing instructions and then climb back for the escort in.



LEGEND: (See figure 5-7, PLAN A)

Plan D—Continuous fire
Figure 5-7—Continued.

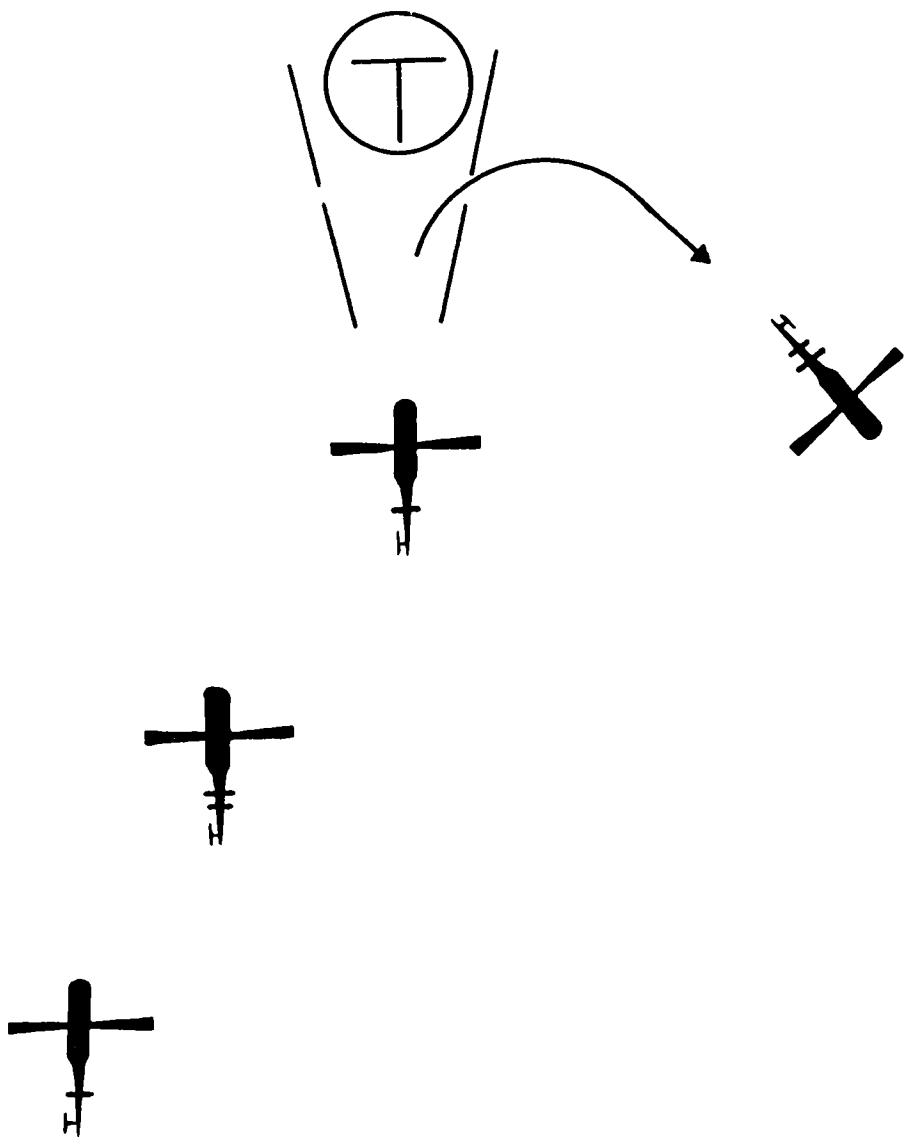
(4) *Plan D.* This formation provides continuous fire on the target until the armed helicopters have expended 100 percent of their ammunition. It must be closely coordinated and at least one aircraft should be placing fire on the target at all times.



LEGEND: (See figure 5-7, PLAN A)

Plan E—Two-ship attack
Figure 5–7—Continued.

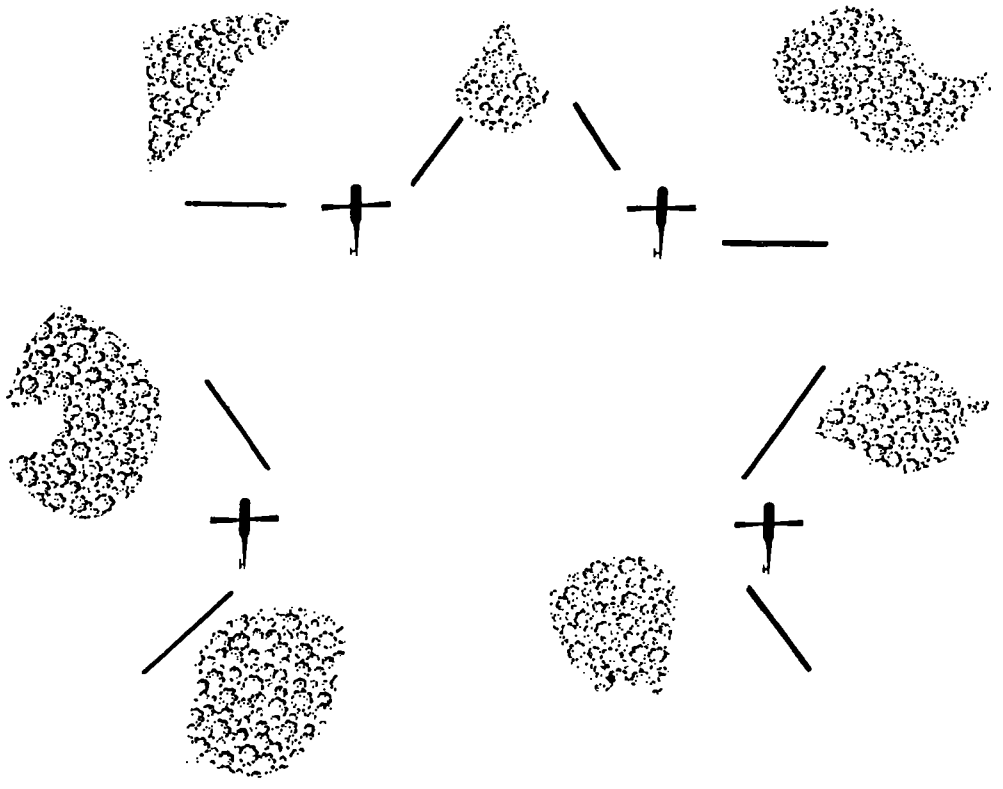
(5) *Plan E.* Two aircraft attack the target, led by the gun team leader. As the team leader fires his last rocket and begins his break away from the target, the wing man engages the target, providing continuous fire on the target until the wing man disengages. Both aircraft break in the same direction and remain mutually supporting at all times. The wing man attacks on a slightly different heading to avoid following the leader in the 180° position and overflying the same terrain as the leader.



LEGEND: (See figure 5-7, PLAN A)

Plan F—Section attacking in column
Figure 5-7—Continued.

(6) *Plan F.* Section attacking in column, with each aircraft covering the aircraft in front on the break. Aircraft can break right or left as a section or the first gun team can break one direction while the second gun team breaks in an opposing direction. Gun team integrity is maintained.



LEGEND: (See figure 5-7, PLAN A)

Plan G—Hovering
Figure 5–7—Continued.

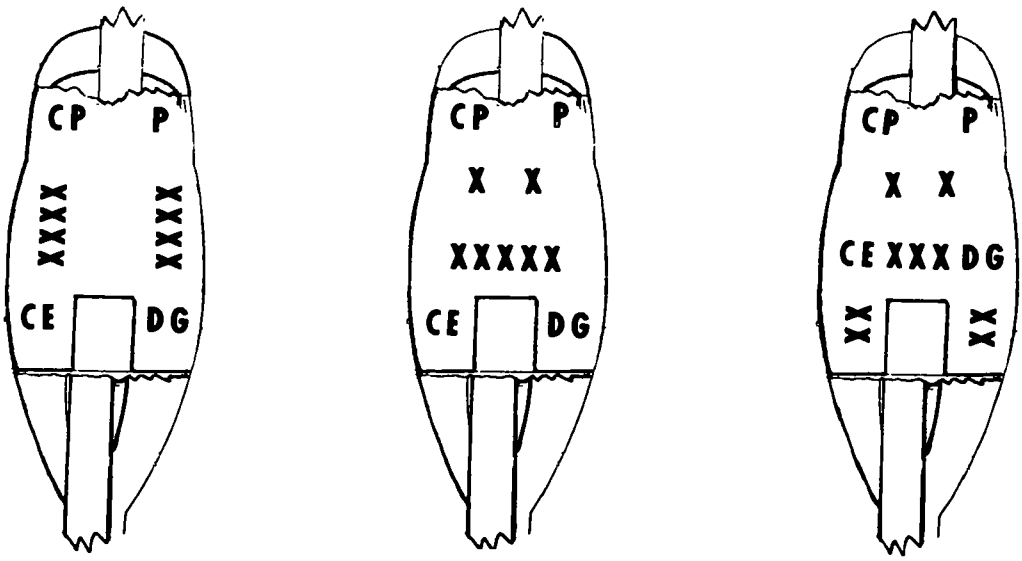
(7) *Plan G (hovering).* Armed helicopters with machinegun systems or grenade launchers may precede or escort lift helicopters into the landing zone and provide covering fire in the landing zone at a hover while lift helicopters approach, unload, and depart the landing zone. The armed helicopters may also provide an initial base of fire for the ground element. When this option is used, armed helicopters in hovering fire should not remain at a stationary hover but should maneuver within the landing zone to place fire on likely target areas and to provide a more elusive target to hostile fire. Other armed helicopters screen the area around the landing zone. Loss of observation, mobility, flexibility, and maneuver must be thoroughly considered by all commanders prior to employment of armed helicopters in hovering fire.

b. Tactical Air Cover. Air Force tactical air cover does not use battle drills for escorting helicopter formations due to the wide differential between relative air speeds of the aircraft and helicopters and the many different types of aircraft used for this mission. The escort is normally performed by use of Air

Force aircraft on air alert above the area traversed by the flight of the forward air controller (FAC). In coordination with the FSCOORD, he directs airstrikes on suspected or known enemy positions along the flight route or in and around the landing zone. These targets may be preplanned or are targets of opportunity. The Air Liaison Officer (ALO) normally rides in the airborne command post aircraft with the airmobile task force commander; he may accompany the formation in another aircraft under special conditions. In either case, the ALO and FAC must have positive communication with strike aircraft.

5–18. Seating

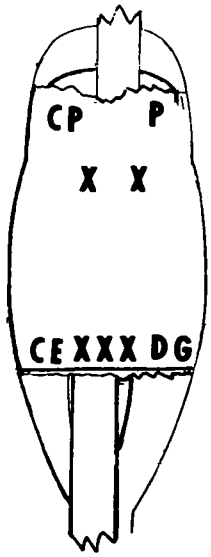
a. Seating configuration of UH-1 lift aircraft may vary with aviation unit SOP. Seating arrangements must be made known to lifted units prior to the operation (fig. 5–8).



VARIATIONS IN SEATING - UH-1D

LEGEND:

X	PASSENGER
P	PILOT
CP	COPILOT
CE	CREW CHIEF
DG	DOOR GUNNER



UH-1B/C

Figure 5–8. Seating configurations, UH–1D and UH–1B/C.

Note. Crew chief may sit on either side of aircraft as desired. Seats may be removed for some missions.

b. Suggested standard loading for airborne command post helicopter (fig. 5–9) is as shown in (1) through (7) below.

(1) Pilot.

(2) Aviation mission commander or flight leader.

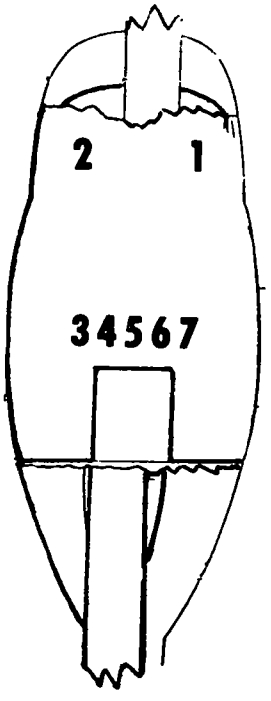
(3) Airmobile task force commander (ground commander).

(4) Air liaison officer.

(5) Artillery FSCOORD.

(6) Staff officer/NCO from airmobile task force.

(7) Door gunner.



LEGEND:

1. PILOT } May be aviation
2. COPILOT } mission commander
3. FSCOORD
4. ALO
5. S3
6. S2
7. TASK FORCE COMMANDER

Figure 5–9. Airborne command post helicopter loading.

5–19. Assault Force Battle Drills

a. The airmobile task force commander, after coordination with the aviation mission commander, may specify the landing formation in order to configure his assault force in the most desirable battle formation. He should base his decision on mission requirement and on known or suspected enemy dispositions in or near the landing zone. He must also consider his desired landing formation in loading his force aboard the aircraft to insure that key personnel (radio operators, mortar observers, machinegunners) will be located, on landing, nearest the area where they will be initially required. Some general rules which should apply are—

(1) Load radios and operators with or near commanders.

(2) Load crew-served weapons with their crews.

(3) Caution all troops to avoid moving around the rear of the helicopters.

(4) Load leaders are with the elements they lead and in the aircraft with their lift leader counterparts (rifle

platoon leaders should ride with lift platoon leaders).

(5) Clear the landing zone as soon as possible to allow subsequent lifts to land.

b. The basic landing formations and dismount battle drills are shown in figure 5–7. Using these formations and battle drills as the basic building blocks, many variations are possible to include positioning of company-size formations in a simultaneous battalion-size landing.

(1) *Sections heavy left (or right), platoon echelon left.* This landing formation (fig. 5–10) provides the heaviest combat power to the front with a rear guard to the right rear. The opposite formation (sections heavy right, platoon echelon right) provides the heaviest combat power to the right front with rear guard to the left rear. This formation is used when the enemy disposition is unknown and an immediate assault of the enemy is desired.

(2) *Sections heavy left (or right), platoon column.* This landing formation (fig. 5–11) provides combat power in all directions and is used when the enemy disposition is unknown.

(3) *Sections echelon right, platoon echelon right.* This landing formation (fig. 5–12) provides maximum combat power to the right front. It is desirable to use for an immediate assault from the landing zone when the enemy dispositions are known.

(4) *1st platoon, sections echelon right, platoon echelon right; 2d platoon, sections echelon left, platoon echelon left; 3d platoon, sections on line, platoon on line* (fig. 5–13). Combat power provides security in all directions when the enemy disposition is unknown.

(5) *Unprepared landing zones.* In unprepared landing zones, individual lift helicopters land as near the perimeter of the zone as possible to discharge

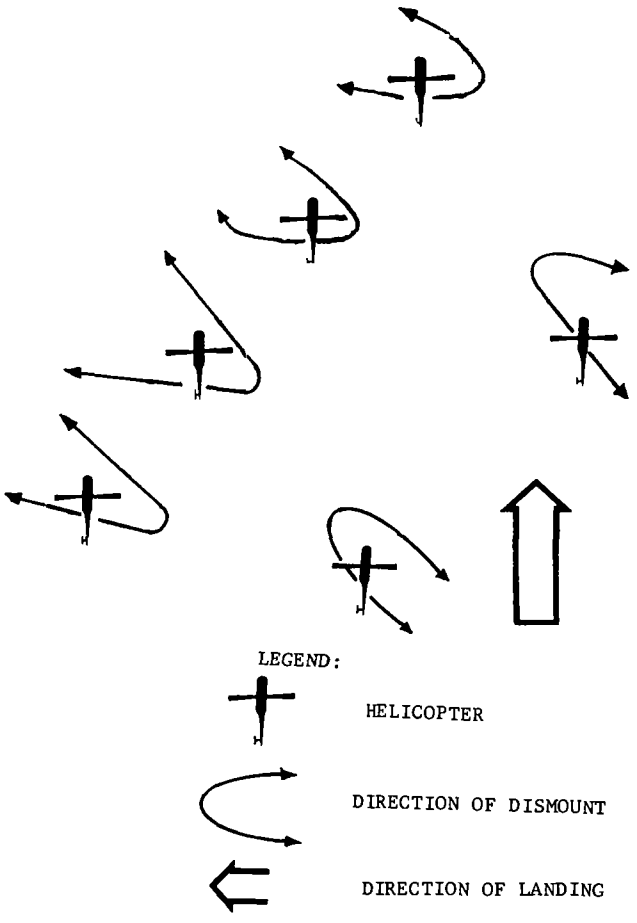
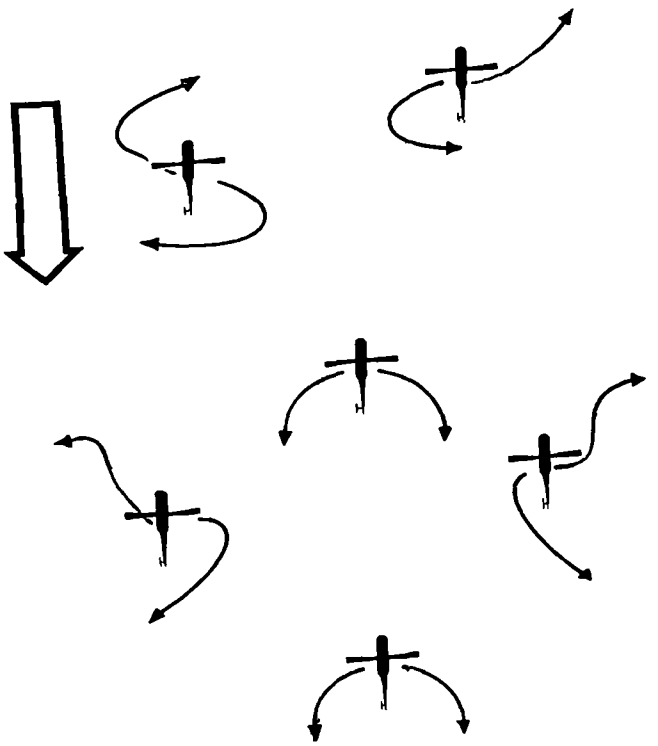


Figure 5–10. Sections heavy left (or right), platoon echelon left.

the troops at or near their security positions (fig. 5–14). This procedure is used only during the initial landing and then only for the security force. During extractions, it may be desirable to have one ground element provide pickup zone perimeter security until all others have been extracted. In this case, the individual lift helicopters that pick up the security force land as near as possible to the individual defensive positions. This procedure allows loading in the least possible time and permits some degree of protection to the aircraft.



LEGEND: (See figure 5-10)

Figure 5–11. Sections heavy left (or right), platoon column.

Exact landing locations for each helicopter must be prearranged in either case if this method is used.

(6) *1st Company, platoons on line, company on line; 2d Company, platoons echelon left, company echelon left; 3d Company, platoons echelon right, company echelon right.* Figure 5–15 is an example formation which may be used when a simultaneous landing of a battalion assault team is desired. Many variations are possible using the basic landing formation.

5–20. Aircraft Identification

a. All lift helicopters may be equipped with plate holders mounted on the post between the pilot/copilot doors and the respective cargo doors. These holders may be used on airmobile operations to display colored and numbered identification plates.

b. The color of the plate can identify the platoon while the number painted in the center of the plate can identify the aircraft position in the lift formation (fig. 5–16).

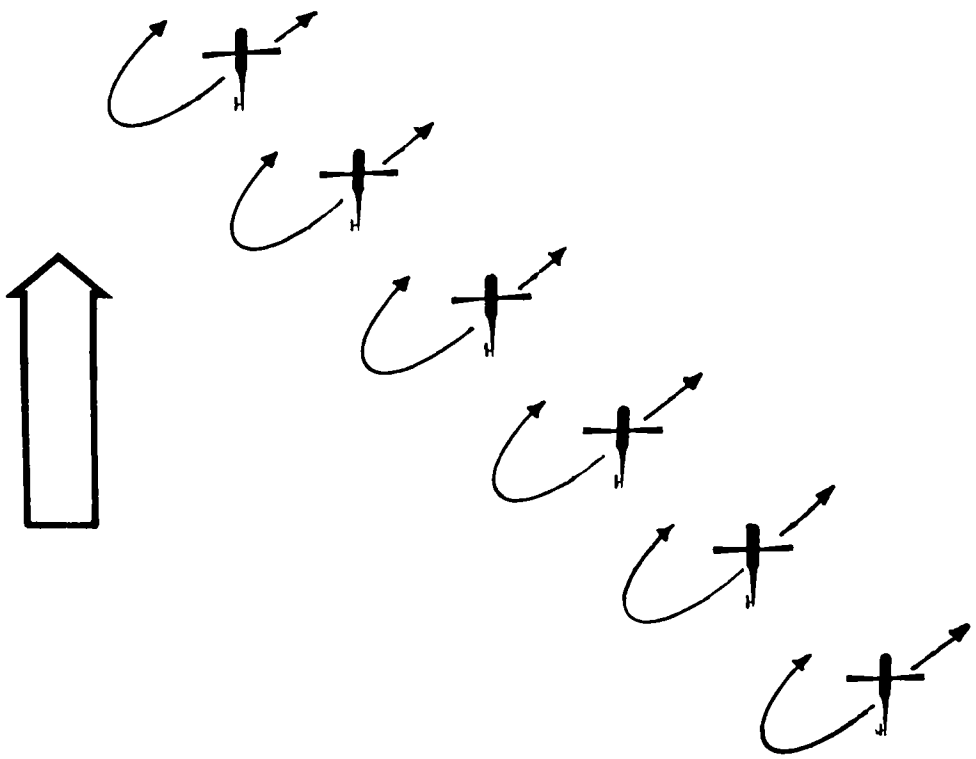
(1) Suggested colors are as follows:

Yellow	1st platoon
White	2d platoon
Green	3d platoon

(2) Numbers identify sections within the platoon as well as formation position and are as follows:

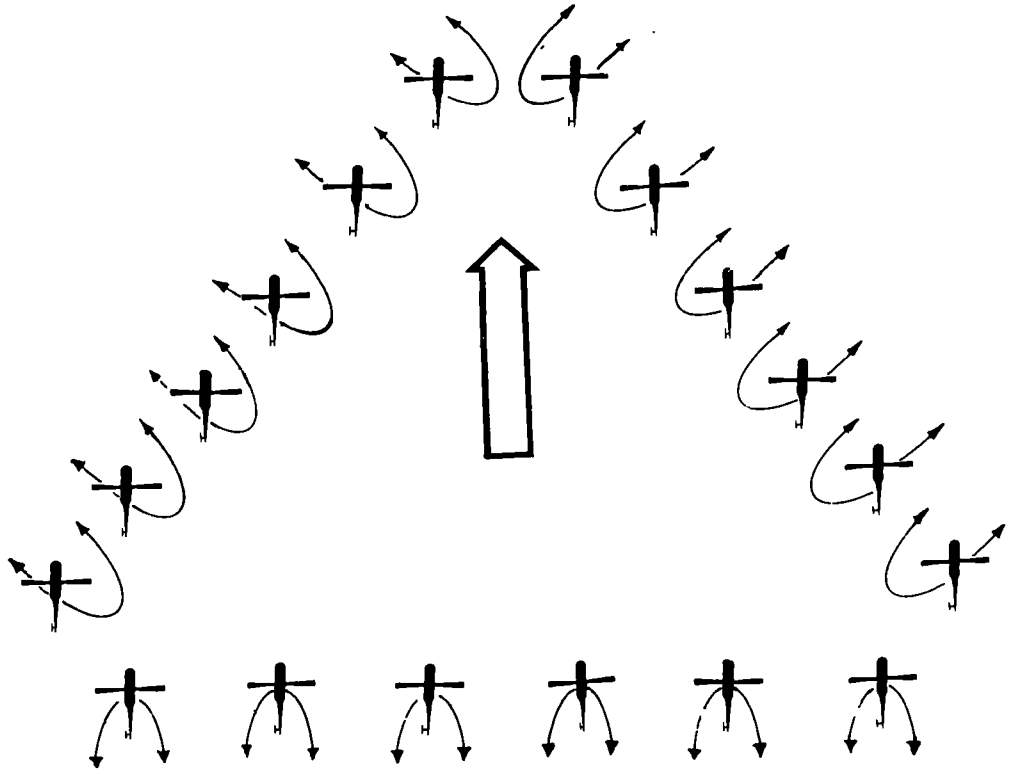
1 through 3	1st section
4 through 6	2d section

c. Identification plates will aid ground troops in rapidly identifying aircraft for loading.



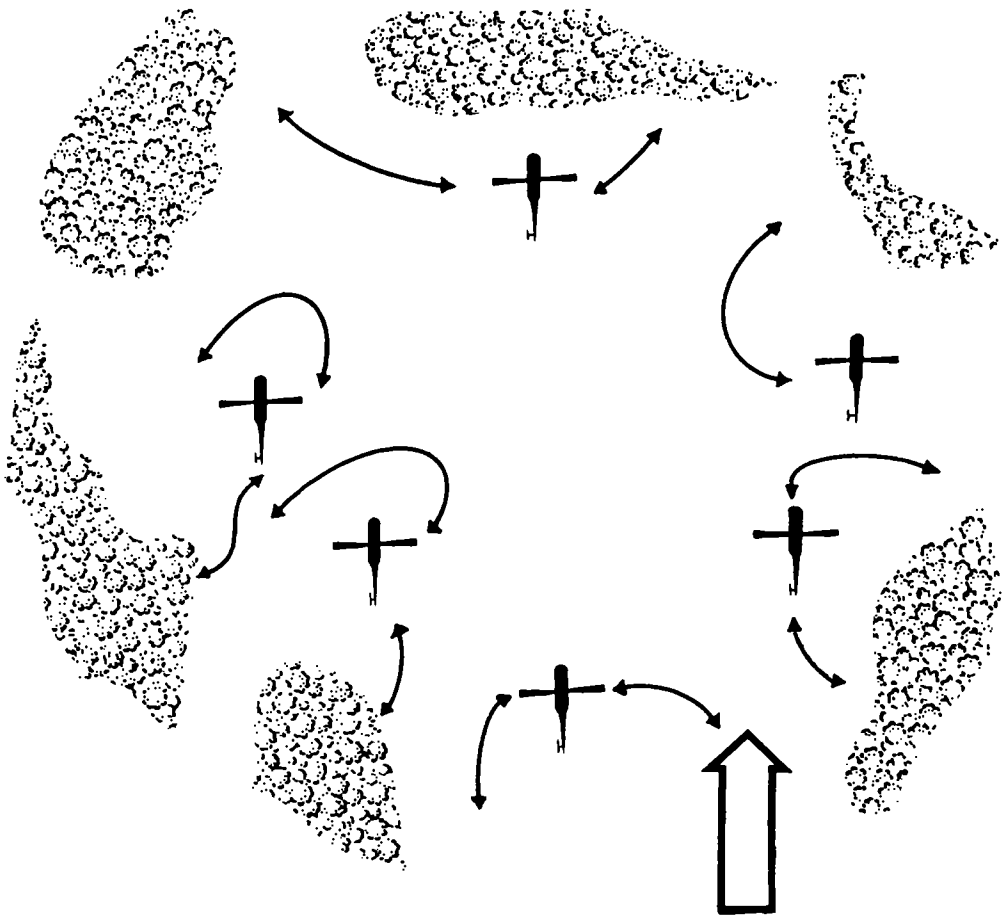
LEGEND: (See figure 5-10)

Figure 5-12. Sections echelon right, platoon echelon right.



LEGEND: (See figure 5-10)

Figure 5-13. Landing formation and dismount battle drill for all-round security.



LEGEND: (See figure 5-10)

Figure 5–14. Initial landing in unprepared landing zone.

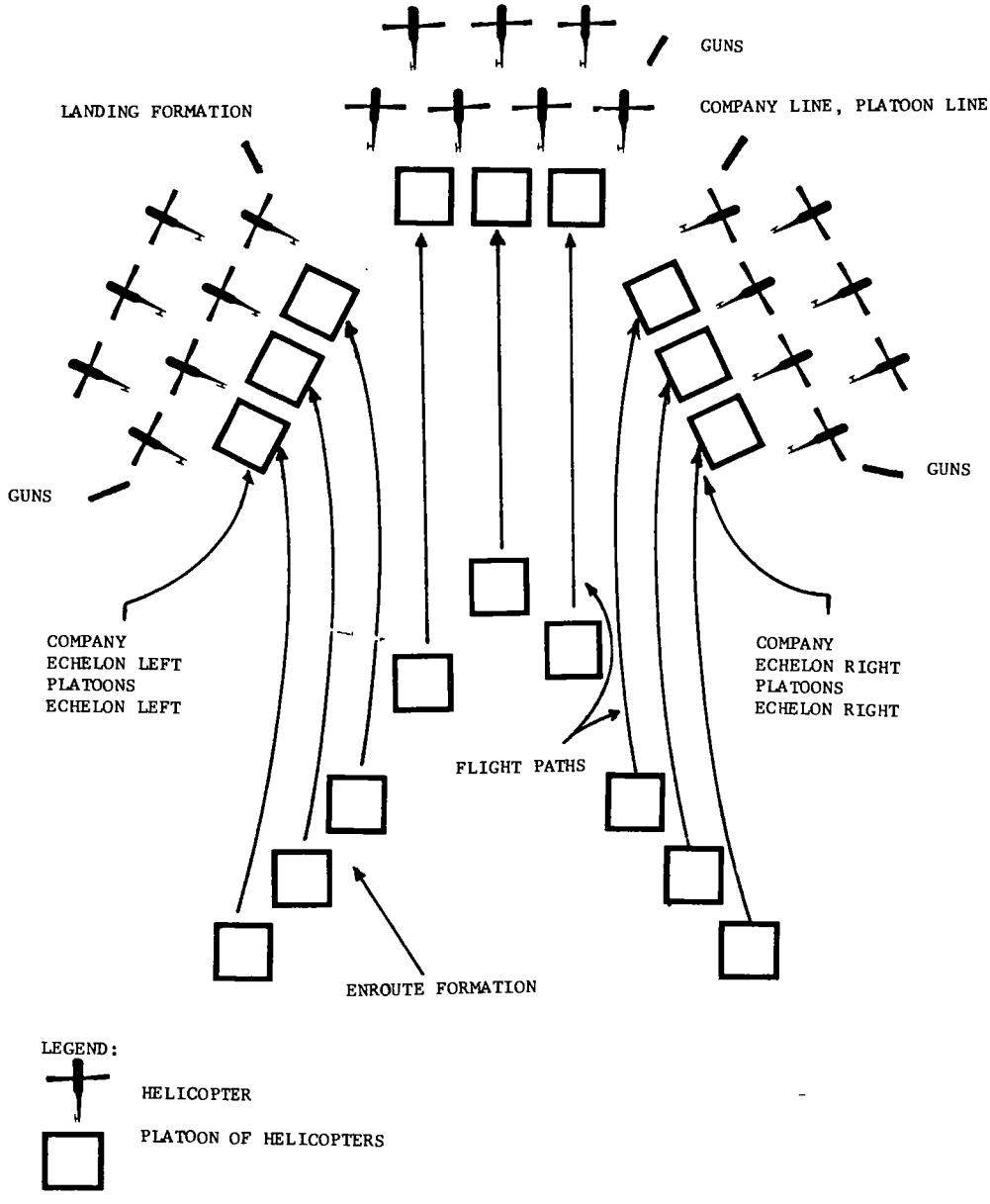


Figure 5-15. Simultaneous landing of a battalion assault team.

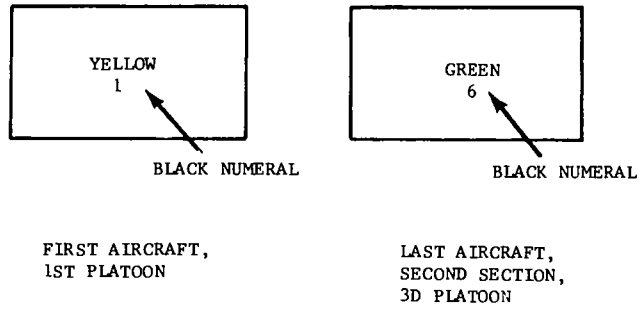


Figure 5-16. Aircraft identification plates.

APPENDIX A

REFERENCES

AR 95–100	Clarification of Roles and Missions of the Departments of the Army and the Air Force Regarding Use of Aircraft
AR 320–5	Dictionary of United States Army Terms
FM 1–5	Aviation Company
FM 1–15	Divisional Aviation Battalion and Group
FM 1–80	Aerial Observer Training
FM 1–100	Army Aviation Utilization
FM 1–110	Armed Helicopter Employment
FM 3–10	Employment of Chemical and Biological Agents
FM 5–1	Engineer Troop Organizations and Operations
FM 5–25	Explosives and Demolitions
FM 5–26	Employment of Atomic Demolition Munitions (ADM)
FM 6–20–1	Field Artillery Tactics
FM 6–20–2	Field Artillery Techniques
FM 7–11	Rifle Company, Infantry, Airborne, and Mechanized
FM 7–15	Rifle Platoon and Squads, Infantry, Airborne, and Mechanized
FM 7–20	Infantry, Airborne Infantry, and Mechanized Infantry Battalions
FM 7–30	Infantry, Airborne, and Mechanized Division Brigades
FM 8–10	Medical Service, Theater of Operation
FM 8–15	Division Medical Service, Infantry, Airborne Mechanized, and Armored Divisions
FM 8–16	Medical Service, Field Army
FM 17–1	Armor Operations
FM 17–36	Divisional Armored and Air Cavalry Units
FM 17–95	The Armored Cavalry Regiment
FM 21–5	Military Training Management
FM 21–6	Techniques of Military Instruction
FM 21–26	Map Reading
FM 21–30	Military Symbols
FM 21–40	Chemical, Biological, and Nuclear Defense
FM 21–41	Soldier's Handbook for Defense Against Chemical and Biological Operations and Nuclear Warfare
FM 21–48	Chemical, Biological and Radiological (CBR), and Nuclear Defense Training Exercises
FM 21–60	Visual Signals
FM 24–1	Tactical Communication Doctrine
FM 24–2	Radio Frequency Management
FM 24–16	Signal Orders, Records, and Reports
FM 24–18	Field Radio Techniques
FM 24–19	Communications-Electronics Reference Data
FM 24–20	Field Wire and Field Cable Techniques
FM 24–21	Field Radio Relay Techniques
FM 29–22	Maintenance Operations in the Field Army
FM 30–5	Combat Intelligence
FM 30–20	Aerial Surveillance-Reconnaissance, Field Army
FM 30–20–1 (TEST)	Aerial Surveillance-Reconnaissance, Field Army (Aerial Surveillance Company)
FM 31–11	Doctrine for Amphibious Operations
FM 31–12	Army Forces in Amphibious Operations (The Army Landing Force)
FM 31–21	Special Forces Operations
FM 31–50	Combat in Fortified and Built-Up Areas
FM 55–45	Aircraft Maintenance Service and Units in the Field Army
FM 55–46	Army Air Transport Operations
FM 57–10	Army Forces in Joint Airborne Operations
FM 57–38	Pathfinder Operations
FM 57–100	The Airborne Division
FM 61–100	The Division
FM 100–5	Field Service Regulations—Operations
FM 100–27	U.S. Army/U.S. Air Force Doctrine for Tactical Airlift Operations
FM 101–5	Staff Officers' Field Manual: Staff Organization and Procedure

FM 101–10–1	Staff Officers' Field Manual: Organization, Technical, and Logistical Data, Unclassified Data
FM 101–10–2	Staff Officers' Field Manual: Organizational, Technical, and Logistical Data Extracts of Organization and Equipment
FM 101–40	Armed Forces Doctrine for Chemical and Biological Weapons Employment and Defense
TM 1–300	Meteorology for Army Aviation
TM 3–240	Field Behavior of Chemical, Biological, and Radiological Agents
TM 5–330	Planning Site Selection, and Design of Roads, Airfields, and Heliports in the Theater of Operations
TM 5–366	Planning and Design for Rapid Airfield Construction in the Theater of Operations
TM 38–250	Packaging and Handling of Dangerous Materials for Transportation by Military Aircraft
TM 55–413	Recovery and Evacuation of Army Aircraft
TM 55–450–8	Air Transport of Supplies and Equipment: External-Transport Procedures
TM 55–450–9	Air Transport of Supplies and Equipment: Internal-Transport Procedures
TM 57–210	Air Movement of Troops and Equipment
TC 3–16	Employment of Riot-Control Agents, Flame, Smoke and Herbicides in Counterguerrilla Operations
DA Pam 310–3	Military Publications; Index of Doctrinal, Training, and Organizational Publications
DA Pam 310–4	Military Publications; Index of Technical Manuals, Technical Bulletins, Supply Manuals, Supply Bulletins, and Lubrication Orders
ACP 136	Communication Instructions, Panel Signaling
ACP 168	Communications Instructions, Pyrotechnic Signals
JCS Pub 1	Dictionary of US Military Terms for Joint Usage
STANAG 3117	Aircraft Marshaling Signals
STANAG 3465	Safety Emergency and Signaling Procedures for Tactical Air Transport Operations
STANAG 3468	General Rules Covering the Transport of Loads by Helicopter

APPENDIX B

PATHFINDERS

B–1. Purpose and Scope

a. This appendix is a guide for commanders and staffs of all infantry, artillery, aviation, and other units with an airmobile capability in employing Army pathfinders during the conduct of airmobile operations.

b. The tactics, techniques, and procedures described herein for the conduct of various types of missions are not inflexible rules; they are guides which commanders should modify as varying conditions of airmobile operations require.

c. Further information can be found in FM 57–38 and FM 21–60.

B–2. Mission

a. The primary mission of Army pathfinder units is to provide navigational assistance to, and control of, Army aircraft in areas designated by the supported unit commander.

b. Secondary missions for pathfinder units include providing limited advice and physical assistance to lifted units in the planning of airmobile operations, and the preparation and positioning of personnel and loads for air movement.

B–3. Capabilities

a. Pathfinder units have the capability to—

(1) Conduct reconnaissance for, and selection of, landing or drop zones for Army aircraft in areas which have been selected by supported unit commanders.

(2) Move to areas of operation by foot, water or surface vehicle, aircraft, or parachute.

(3) Prepare landing or drop zones to include establishing and operating visual and electronic navigational aids and removal of minor obstacles. They can also furnish ground-to-air voice radio communications to aircraft for the purpose of providing information, guidance, and air traffic control within the area of operation. Through direct coordination with collocated fire support units, pathfinders provide advisory service to aviators concerning friendly mortar and artillery fires.

(4) Assist in the assembly of air delivered troops, supplies, and equipment.

(5) Provide advice and limited physical assistance in the preparation and positioning of troops, supplies, and equipment for air movement.

(6) Conduct limited chemical and nuclear monitoring or survey of designated areas.

(7) Provide limited weather observations to include wind velocity and direction, cloud cover, visibility, approximate ceiling, and density altitude.

(8) Operate drop zones and airfields for U.S. Air Force aircraft in the absence of Air Force combat control teams, and by mutual agreement. In this situation, it may be necessary to provide pathfinders with radios (UHF, VHF) that are compatible with Air Force aircraft.

b. Each pathfinder section is organized and equipped to establish and operate—

(1) Day or night control facilities for the simultaneous operation of four helicopter landing sites of any type. Night operation of these landing sites may

be limited by the amount of lighting equipment organic or available to pathfinders (fig. B–1 and B–2). Included is the provision for one manned released point.

(2) Two day or night fixed-wing airfields (fig. B–3).

(3) Three day or night resupply of personnel drop zones. (fig. B–4 and B–5)

(4) Three LOLEX sites.

B–4. Limitations

Organic personnel and equipment strength of pathfinder units limits the employment of the units to aircraft guidance and other primary tasks. It is necessary that these units be augmented by additional personnel from a supported unit to—

a. Provide security.

b. Remove major obstacles.

c. Recover and assemble equipment and supplies.

d. Operate additional radio nets and telephones.

e. Transport items of equipment.

f. Conduct detailed chemical and nuclear monitoring and survey.

B–5. Organization and Assignment

a. The basic pathfinder unit consists of 2 officers and 13 enlisted men. Each member of the unit is a qualified parachutist and must be cross-trained in the pathfinder duties of other unit members.

b. Pathfinder units may be organic to—

(1) Field army or separate corps (TOE 7–168).

(2) Divisional and separate aviation battalions possessing a trooplift capability (TOE 1–76).

(3) Aviation group of the airmobile division (TOE 1–101).

c. Depending upon its location within the Army structure, a pathfinder unit may be referred to as a platoon, section, or detachment.

B–6. Employment

a. General.

(1) Pathfinders are employed however and whenever necessary to provide the required guidance and control of Army aircraft. This encompasses any phase of an airmobile operation or a ground operation requiring sustained support by Army aircraft. In some situations, this employment may be only on a short-term, mission basis with pathfinders being extracted from a landing/drop site for employment elsewhere upon completion of the major lift/drop into the area. Aviation units with sufficient pathfinder resources may best support airmobile operations by attaching pathfinder elements to ground units for the duration of the operation. This may occur down to company level. During such employment, pathfinders provide air traffic control and guidance on an around-the-clock basis for any type airmobile movement or resupply operation conducted by or for the ground unit, and supported by any aviation unit.

(2) Pathfinders are organized for combat to meet the specific requirements of the mission. In the majority of operations, the pathfinder element at a given landing/drop site will be three to six men. A pathfinder section seldom will be employed as a unit at a single location.

(3) Pathfinder units are trained and equipped for the selection, improvement, marking, and control of sites (as required). Engineer elements in direct support of lifted ground units may assist pathfinders in the improvement of landing/drop sites as necessary. In most situations, pathfinders perform two or more of the above functions simultaneously, with priority given to rapid establishment of ground-to-air radio communications.

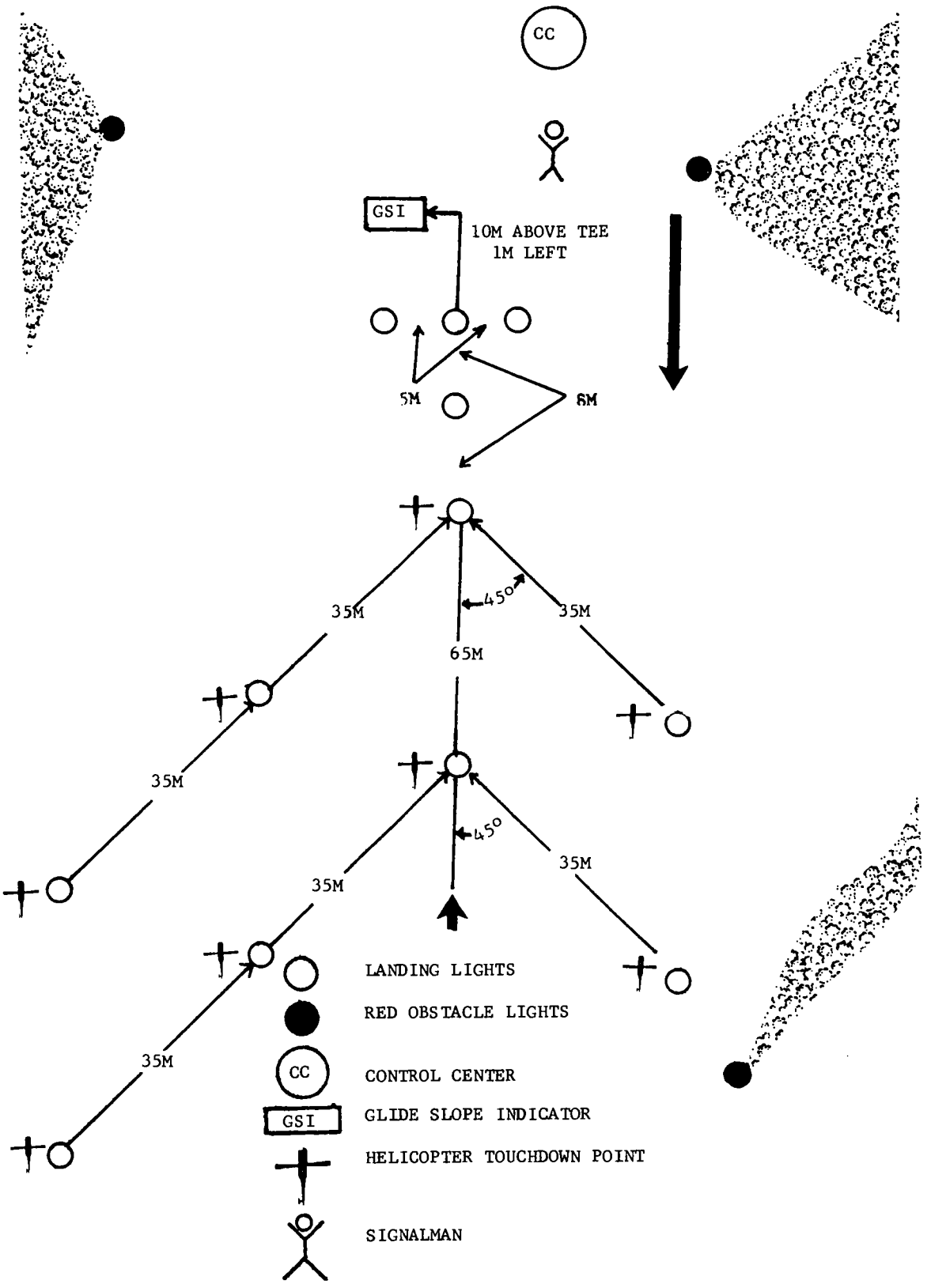


Figure B–1. Night-landing site, UH–1, platoon heavy left.

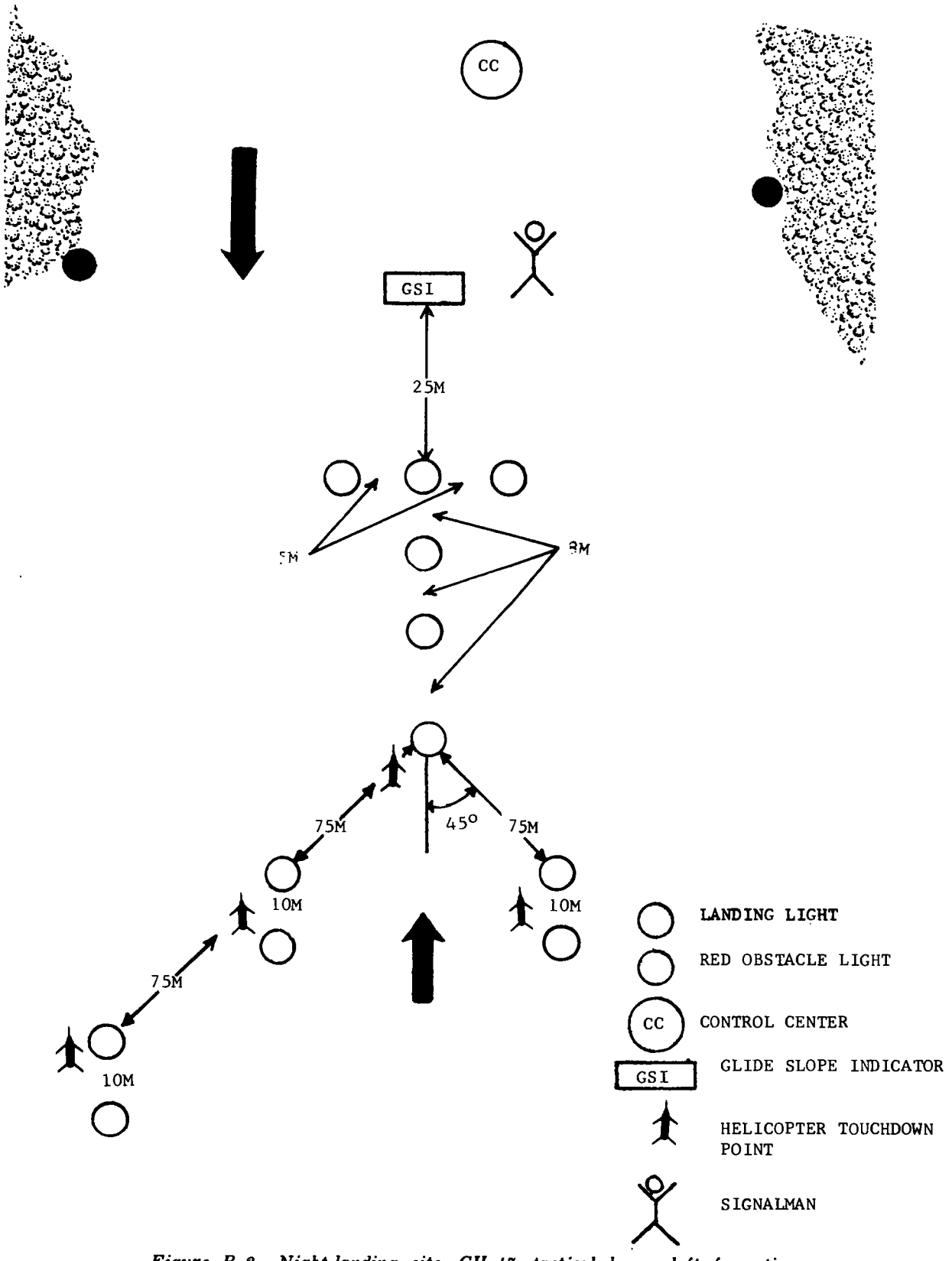


Figure B–2. Night-landing site, CH–47, tactical heavy left formation.

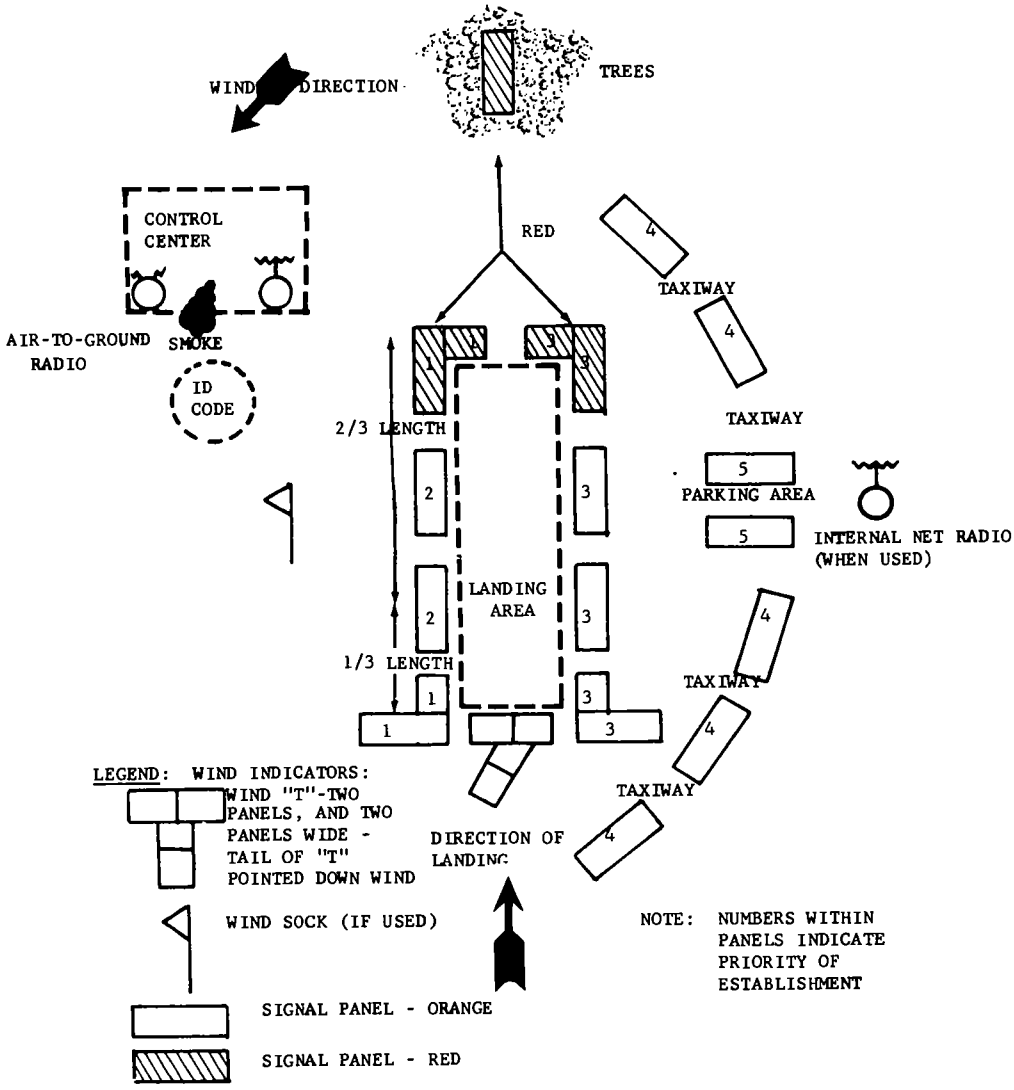


Figure B–3. Airplane landing strip (day).

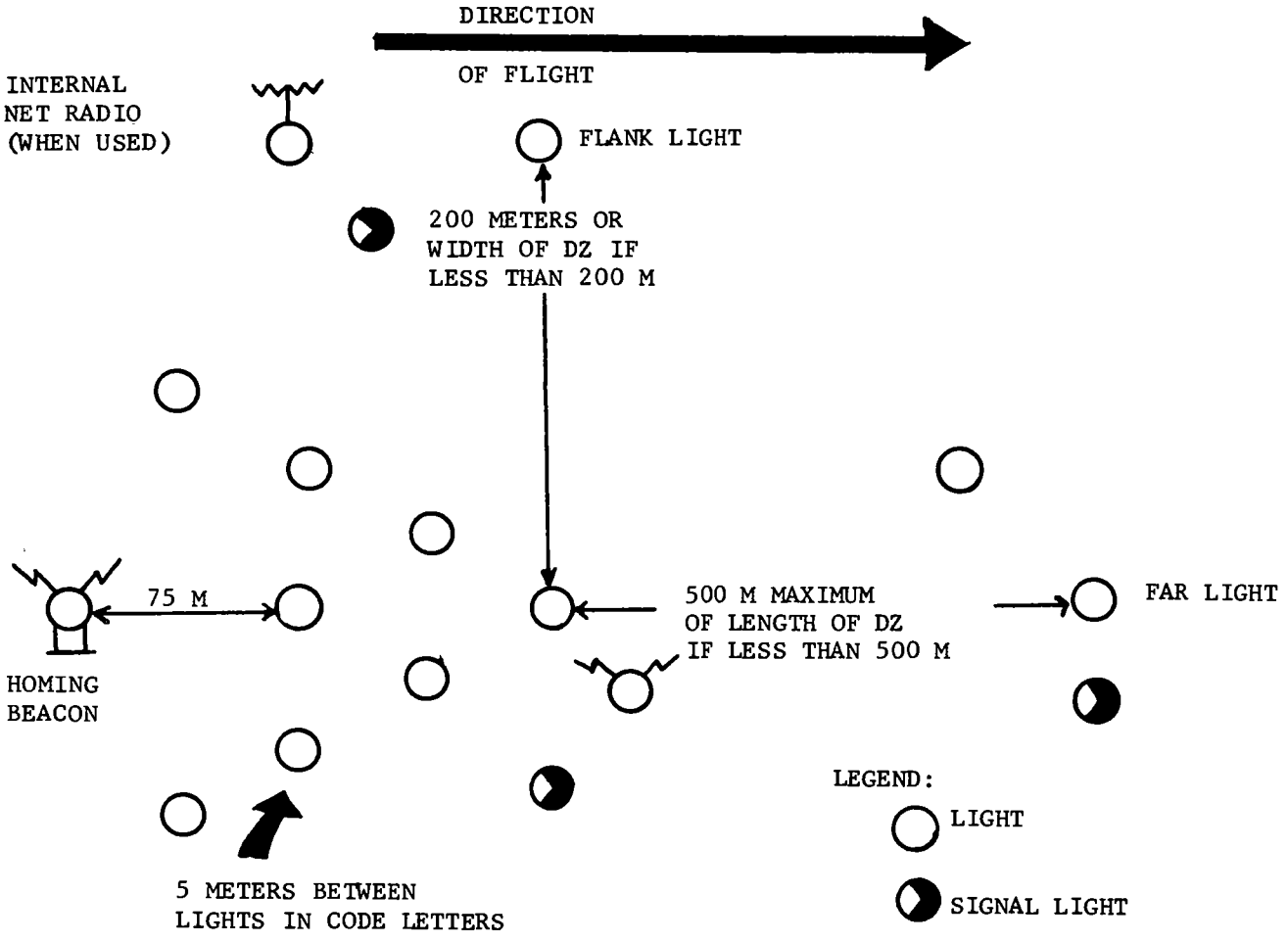


Figure B-4. Night drop zone.

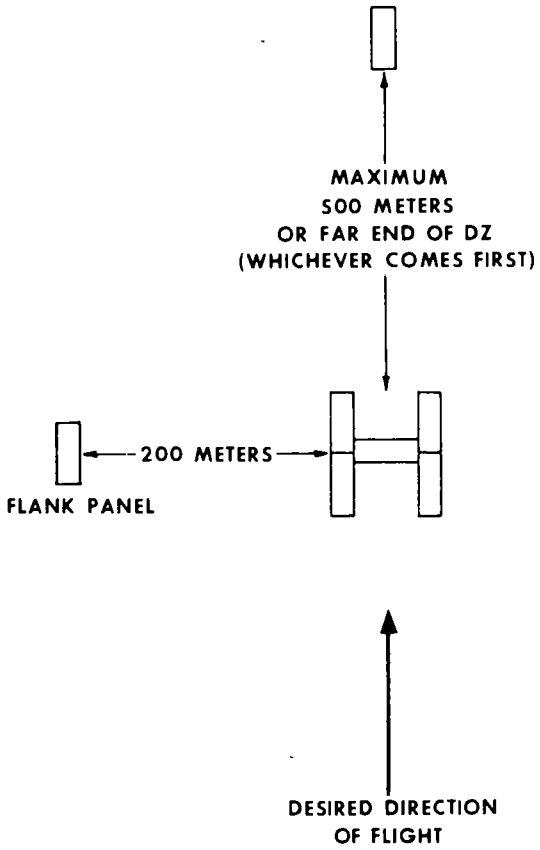


Figure B–5. Day drop zone.

b. Secondary Employment.

(1) Pathfinder personnel and equipment remain assembled in the vicinity of, and in communication with, the supported unit command post except when performing pathfinder duties for subordinate units.

(2) When the pathfinder unit has completed preparations to perform further missions, it may be employed within the command post of the supported unit to—

(*a*) Assist in aviation unit base airfield control.

(*b*) Assist in minor demolition work.

(*c*) Assist staff sections by performing map and aerial photo work.

(*d*) Augment local security by acting as interior and exterior command post guard.

(3) Training and maintenance should take priority over performance of secondary missions.

(4) A pathfinder unit must be able to perform any of the assigned pathfinder missions with a minimum of notice and preparation.

B–7. Conduct of Operations

a. General. The pathfinder unit possesses an inherent flexibility which allows it to be employed effectively in many different situations. It must be able to accomplish assigned missions at widely separated areas in all types of warfare, weather, and terrain. Exact procedures employed by pathfinders in the conduct of operations will vary according to tactical considerations and aviation and ground unit SOP.

b. Method of Delivery.

(1) The preferred method of delivery of pathfinders into an objective area is airlanding by helicopter. Normally, pathfinders will accompany the assault echelon on the initial lift into the landing site and control all subsequent lifts into the area. This allows the prestrike to continue until the last practicable moment; prevents compromise of the selected LZ's by early commitment of pathfinders; and minimizes any loss of pathfinders through early commitment.

(2) In certain situations where unusually difficult landing conditions exist, the prestrike may be terminated early to allow pathfinders to enter the site ahead of the first lift to accomplish initial clearing of the area and provide the required aircraft control. If time is available and a high degree of surprise and secrecy is required, pathfinders may be parachuted onto or near the landing site. This type entry is most applicable for night operations, but has obvious inherent disadvantages. Pathfinder elements may also infiltrate an objective area

on foot in conjunction with reconnaissance or security forces.

c. Control Center and Release Point.

(1) *Control center.*

(*a*) A control center (CC) is required at each landing/drop site. Its purpose is to control aircraft in and around the site, and to promote safe, orderly, and expeditious air traffic.

(*b*) The CC location at a landing site site is selected by the pathfinder site commander to facilitate visual control of air traffic, and minimize aircraft noise interference with radio communications. At a drop site the CC should be located at or near the code letter or desired execution point for parachuted loads.

(*c*) A CC should be organized to meet the requirements of the mission. Of necessity, however, it may consist of only a single pathfinder controlling air traffic for a limited period of time at a small landing/drop site.

(2) *Release point.*

(*a*) Release points (RP) along flight routes normally will not be manned or marked unless the location coincides with a relatively secure area, or if extremely difficult navigational problems are anticipated by the aviation commander.

(*b*) When the RP is manned, pathfinders establish and operate necessary navigation aids, and monitor the air traffic control frequency in order to respond immediately to requests from aircraft for assistance in locating the RP.

d. Communication.

(1) An essential element of successful pathfinder operations is communication by ground-to-air voice radio. This radio is one of the first items placed into operation by pathfinders, and it should be the last item taken out of operation. Pathfinders must have a thorough understanding of air traffic control and voice radio procedures.

(2) To achieve the necessary speed and clarity of transmission, radio discipline must be practiced by pathfinders and aviators alike. Unnecessary messages should be eliminated. Pathfinder air traffic control frequencies must be used for that purpose only, except in emergencies.

(3) Whenever possible, pathfinders should monitor major supported unit command nets in order to keep abreast of rapidly changing situations that could influence pathfinder operations.

(4) Positive communication must be established between pathfinder air traffic control facilities and collocated fire support elements to insure that timely and accurate information concerning friendly fires is available to aircraft.

B–8. Terminal Guidance by Supported Units

a. In case of a requirement to assist aircraft in areas where TOE pathfinders are not available or required, terminal guidance normally will be furnished by selected personnel within the supported unit, using organic or improvised equipment.

b. Terminal guidance personnel should be familiar with supporting aviation unit SOP and be trained to—

(1) Operate electronic and visual navigation aids to assist aircraft in locating landing/drop sites.

(2) Provide limited essential information to, and guidance and control of, Army aircraft through ground-to-air radio.

(3) Reconnoiter for and recommend suitable landing/drop sites.

(4) Determine, recommend and/or accomplish necessary pioneer work to prepare landing/drop sites for use.

c. When TOE pathfinders are used, unit terminal guidance personnel will normally augment pathfinder elements.

APPENDIX C

SELECTION, IMPROVEMENT, AND OPERATION OF LANDING AND DROP ZONES

C-1. General

a. In selecting a landing/drop zone, a major consideration is its location in proximity to the objective to be seized. Alternate landing/drop zones are also taken into consideration at the same time. A landing/drop zone should be as close to the objective area as possible without bringing the assault force under enemy ground attack or fire from supporting weapons.

b. As an airmobile force is sensitive to intelligence information of the enemy, consideration is given to enemy troop dispositions and his capability to react to an airmobile assault. Consideration is also given to terrain in, and adjacent to, the primary and alternate landing zones.

c. Consideration is given to the available approaches to the landing zone, the obstacles on the landing zone, and meteorological forecast for the time of the operation. A combination of terrain and low ceiling or changing visibility conditions may preclude the selection of some landing zones, or temporarily deny their use.

d. Selected landing zones should be within the range of supporting artillery in order to neutralize, destroy, or disorganize the enemy forces in, or on the periphery of, the landing zone or adjacent to the landing zone. Supporting fires must have the capability of rendering the enemy ineffective against an airmobile force until a foothold can be gained.

e. The security of the operation should not be compromised by the presence of reconnaissance aircraft overflying proposed landing zones.

C-2. Selection of Landing/Drop Zones

a. Minimum landing space requirements and minimum distances between aircraft on the ground depend upon a number of variables, and normally will be covered by aviation unit SOP or prearranged by the aviation unit commander in coordination with the pathfinder commander. The final decision concerning minimum landing requirements rests with the aviation unit commander. In selecting helicopter landing sites from maps, aerial photographs, and actual ground or aerial reconnaissance, the following factors are considered:

(1) *Size of landing point.* As a guide, a helicopter requires a relatively level, circular area at least 20–75 meters in diameter for landing, depending upon the type of helicopter. Generally speaking, a helicopter will require more usable landing area at night than during the day.

(2) *Number of helicopters used.* An important factor is the number of helicopters required to land simultaneous at one location to accomplish the mission. It may be necessary to provide an additional landing site nearby or to land aircraft in successive flights at the same site.

(3) *Landing formation.* Planned landing formations may require modification to allow helicopters to land in restricted areas. It is desirable to land aircraft in the same formation in which they are flying, whenever possible.

(4) *Surface conditions.* Surface conditions must be firm enough to prevent helicopters from bogging down, creating excessive dust, or blowing snow. Rotor wash on dusty, sandy, or snow covered surfaces may cause loss of

visual contact with the ground and should be avoided, especially at night. Loose debris that may cause damage to the rotor blades or turbine engines must be removed from landing points.

(5) *Ground slopes.* Normally, if the ground slope is greater than 15 percent, helicopters cannot land safely. When the ground slope is under 7 percent helicopters should land upslope. In areas where the ground slope is from 7 to 15 percent, aircraft must land and park side slope. It is sometimes possible, however, for helicopters to hover over ground slopes greater than 15 percent to load or unload personnel or supplies.

(6) *Approach/departure directions.* The direction of landing should be generally into the wind, especially at night. However, if there is only one satisfactory approach direction due to obstacles or tactical situation, or to make maximum use of available landing area, most aircraft can land with a crosswind (10 knots or less) or tailwind (5 knots or less). (The same considerations apply to departure from a landing area.)

(7) *Prevailing winds.* Of the two factors—approach/departure route ((6) above) and prevailing wind—the best approach/departure route is the more important factor unless the crosswind velocity exceeds 10 knots. The ability to land crosswind or downwind will vary, depending upon the type aircraft. Smaller aircraft can accept less crosswind or tailwind than larger, more powerful aircraft.

(8) *Density altitude.* The density altitude is determined by altitude, temperature, and humidity. For planning purposes, as density altitude increases, the size of the landing site must be increased proportionately. Generally speaking, high, hot, and dry conditions at a given landing site will decrease the lift capabilities of helicopters using that site.

(9) *Loads.* Most helicopters cannot ascend or descend vertically when fully loaded; therefore, a larger landing area and better approach/departure routes are required for fully loaded helicopters than for empty or lightly loaded ones.

(10) *Obstacles.* Landing sites should be free of tall trees, telephone or powerlines, or similar obstructions on the approach or departure ends of the landing site that may interfere with helicopter landings or takeoffs. Obstacles within the landing site (i.e., rocks, stumps, holes) that cannot be eliminated, must be clearly marked. For planning purposes, an obstacle ratio of 10 to 1 will be used (i.e., a 10-meter tree needs 100 meters of horizontal clearance from landing points if aircraft must approach or depart directly over the tree).

b. Detailed information of the effects of air density, slope, and surface conditions on landing site requirements is contained in appropriate technical manuals. The helicopter unit commander makes the final decision on minimum landing requirements. These requirements must be available to the pathfinder and ground unit in the form of SOP or oral instructions in the early planning stages of the mission.

c. Alternate sites may be needed because of enemy action, unfavorable terrain conditions, or changes in the tactical or logistical situation. The ground commander or his representative decides when alternate sites will be used, at the recommendation of the aviation unit commander and the pathfinder on the site.

d. Considerations for selecting drop zones are generally the same as those for selecting landing zones, though less emphasis will be placed on obstacles, slope, and soil trafficability, since the aircraft do not land.

e. Operations in landing zones and drop zones include the following considerations:

(1) Serial or flight leaders establish communication with the control center or the airborne command post at the communication checkpoint and receive information on the weather, enemy, and terrain. When the information indicates that an alternate plan must be used, the airborne command post normally advises the serial or flight leader of the heading and distance to alternate sites or strips. All flights pass over the release point before taking up the heading to their landing sites or strips.

(2) Aircraft land, unload, and takeoff under control of the control center which normally, although not necessarily, consists of pathfinders. The following standard procedures may be used:

(*a*) *Helicopter landing zone.*

1. Flights may be vectored to the landing zones by the airborne command post or by armed helicopters which precede the troop aircraft.
2. Pathfinders, the airborne command post aircraft, or armed helicopters may mark the landing zone with smoke, or other means.
3. A landing point for the flight leader may be marked or indicated. The flight leader occupies that particular location, and the rest of the flight lands adjacent to him.
4. Normally, only minimum markings are used during daylight operations. The landing point for the lead helicopter of each major formation may be marked by a panel or other easily identifiable means.
5. During pinnacle or single point landings, the pathfinders may guide each helicopter individually, guiding it to its landing point by use of panels or arm-and-hand signals.

(*b*) *Airplane landing strip.*

1. Parking party personnel use arm-and-hand signals to control aircraft parking.
2. When pathfinders or other air traffic control elements are used, aircraft receive landing, taxi, and takeoff instructions from the control center by radio or standard light signals. (See FM 21–60 for light signals.)

(*c*) *Drop zone.* In drop zone operations, an aircraft flying up the center of the code letter releases its bundles or troops on radio command or when abreast of the flank panel.

C–3. Night Landing Zones, Landing Strips, and Drop Zones

a. General. During the conduct of illuminated or nonilluminated night operations, the touchdown point of each aircraft in the formation should be marked by a visible light source (fig. C–1).

b. Selection. The considerations applicable to the selection of day landing zones, landing strips, and drop zones are equally applicable for night operations. Increased emphasis is placed on avoiding obstacles and selecting glidepaths free of obstacles. Landing sites must be easily identifiable and must provide added maneuver room for helicopter formations in flight and during landing and takeoff.

c. Preparation. At night, emphasis must be placed on preparation of landing strips and sites to insure an obstacle-free and dust-free surface. Obstacles that cannot be removed must be clearly marked.

d. Operation. The operation of night-landing zones, landing strips, or drop zones is essentially the same as for day operations, but more control is exercised over the aircraft formations. Normally, radio control is mandatory to control aircraft. Flight leaders establish communication with the control center at a designated communication checkpoint or time. Command and control and reconnaissance helicopters may be used to vector helicopters to the landing zones.

C–4. Special Landing Zones and Strips

a. In difficult terrain, landing zones and

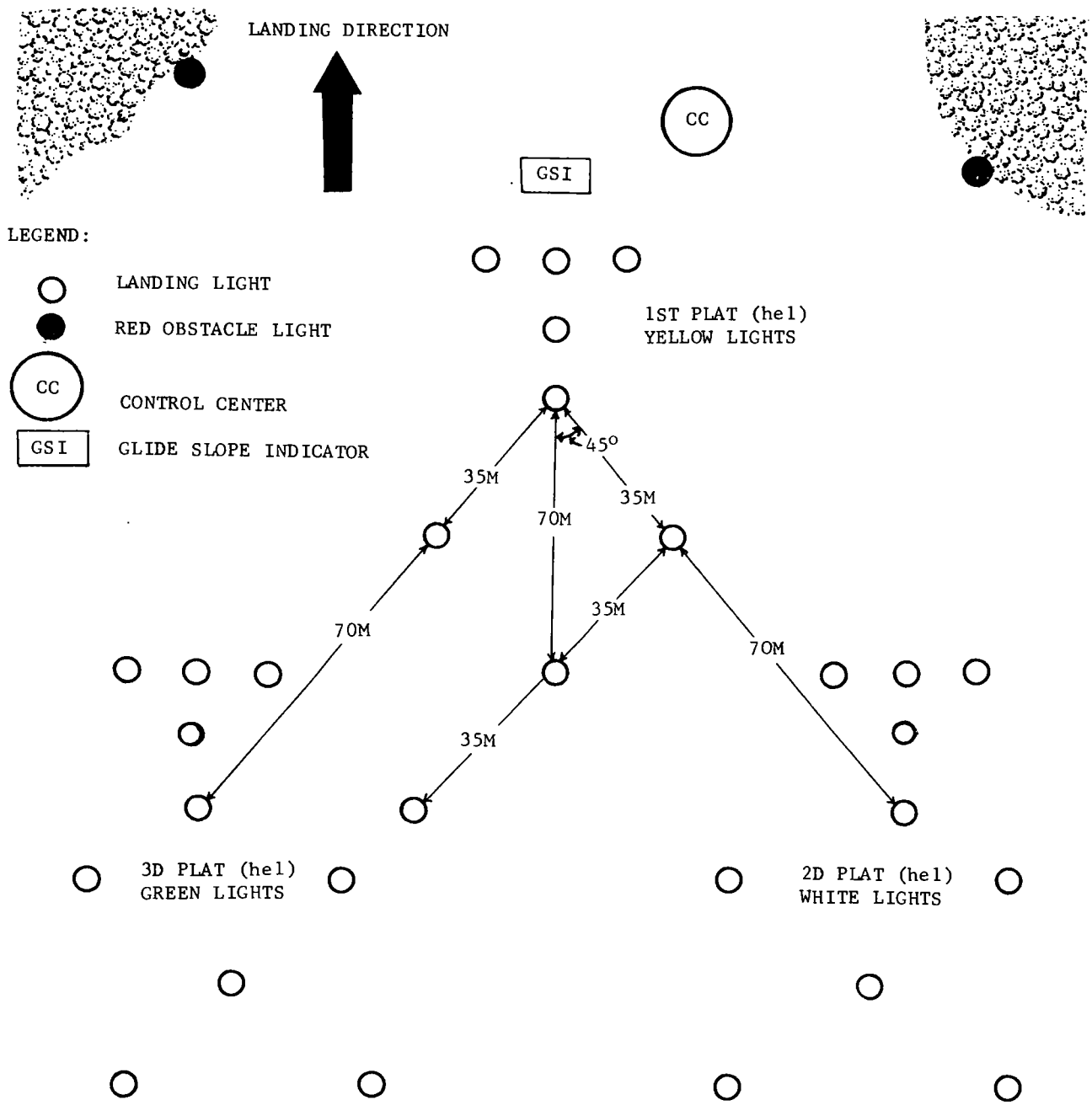


Figure C–1. Type company night-landing site layout—company vee, platoon vees in trail.

strips may be unusually hard to prepare. Much work will have to be done to remove obstacles and level the ground. Additional personnel may be required for this purpose.

b. In swampy areas, it may be necessary to build mats of small trees or other material upon which helicopters may land and unload.

c. In mountainous terrain, landing sites may be prepared on ridges or pinnacles by cutting into a hill or ridge and building up a level

area. This leveled area must allow enough room for the helicopters to land and provide a clearance between the rotor blades and the cutout uphill slope.

d. In desert or other dry areas, effort must be made to reduce the amount of dust created by landings and takeoffs, particularly at landing sites. Not only does dust interfere with an aviator's vision, but it creates special aircraft maintenance problems. Oil or kerosene may be sprayed on the ground to minimize dust.

e. In arctic areas, powdered snow creates the same general problems created by dust in the desert. When time and the situation permit, the powdered snow should be scraped away until a firm surface is reached, or the snow should be firmly packed.

f. Because of a decrease in the air density caused by the warm air in tropical areas, loaded helicopters may not be able to land or take off vertically but require a short ground roll or running takeoff. In jungle operations, considerable time and effort may be required to provide adequate landing and takeoff space. If landing sites cannot be cleared, and the density altitude permits, personnel can unload from hovering helicopters by climbing down ladders, by rappelling, or by jumping if the helicopters can touch down on skid or wheel or hover low enough to preclude injury to personnel exiting from the aircraft. In jungle areas, it may be necessary to use special metal matting that is laid over the jungle canopy, in order to land helicopters. Trooper ladders and rappelling ropes may also be used to land troops (fig. C–2 and C–3). On occasion, pathfinders or engineers may use demolitions or powersaws to open sufficient space in the jungle canopy.

C–5. Landing Zone Preparation (Prestrike)

a. Several methods of landing zone preparation are available to the commander. These methods include the use of several different forms of support in order that maximum devastation might be brought in adjacent to the landing zone(s) in a minimum amount of time.

b. Methods of preparation—

(1) Tactical air support.
(2) Artillery preparation.
(3) Naval gunfire.
(4) Armed helicopters.
(5) Offensive fire.
(6) Troop-landing smoke screen system.

c. The purpose of preparing a landing zone is to disorganize and confuse a strong enemy force to prevent its immediate reaction to the airmobile force during movement, landing, and assault phases of an operation. The airmobile force commander may choose one or more of the methods of preparation listed above.

(1) *Tactical air support.*
  (*a*) The versatility of available ordnance allows for flexibility in any plan of operation. The type of ordnance and method of drop will depend on several factors, to include disposition of troops, type of landing zone, location of landing zone, time of combat assault, and desired effect. The tactical air power must be immediately responsive to the airmobile force in order to adjust the rapidly changing situation of combat environment.
  (*b*) Use of bombs is another means of delivering maximum devastation against an enemy force fortified in or near a proposed landing zone. Coordination for the use of this support is completed at the joint staff level.

(2) *Artillery preparation.* Artillery fires must be planned on the actual landing zone and other areas to deceive the enemy as to the intended attack and maximize the effects of surprise.

(3) *Naval gunfire.* The availability of this type of fire support is often limited by location and restriction of movement. However, this fire can be used very effectively to prepare several likely landing zones, thus causing the enemy to become confused as to which landing zone will be used by the assault elements. A positive means of radio contact with the vessels providing the gunfire gives a direct response to the airmobile force commander.

Figure C–2. Troops landing by means of trooper ladders.

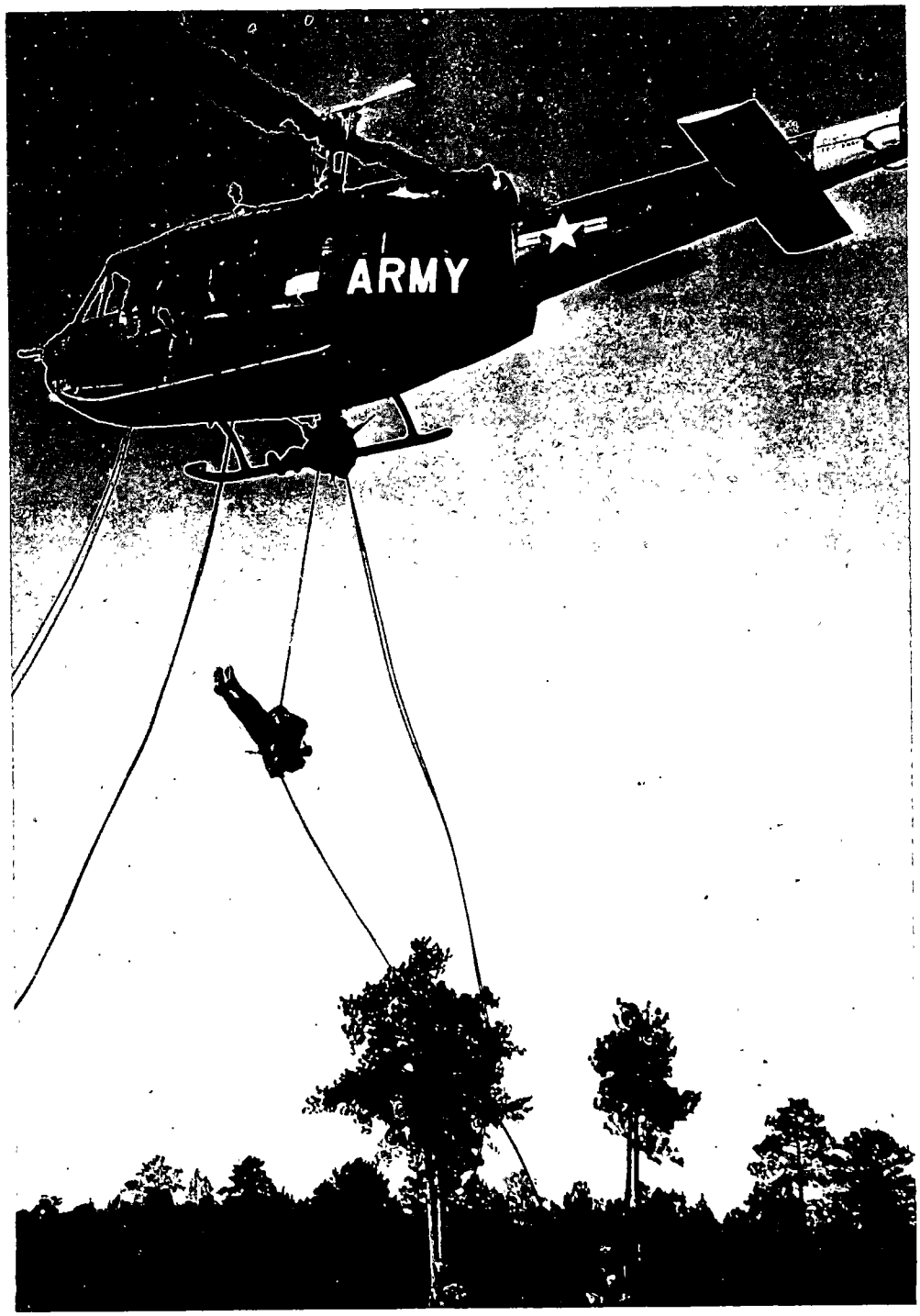


Figure C–3. Assault force troops rappelling into a remote area.

(4) *Armed helicopters.* The armed helicopters within each airmobile company, and those assigned to the armed helicopter company within the battalion, give the commander a capability for immediate responsive aerial fire support. Aerial artillery or armed helicopters, firing close-in, last-minute preparatory fires, will neutralize enemy forces present within the landing zone. The techniques of suppressive fire developed using armed helicopter elements allow preparation of the landing zone in a minimum amount of time. In addition, the commander has the capability to adjust fire quickly and accurately.

(5) *Offensive fire.* This technique utilizes all available armament resources within the helicopter elements which can cover known or suspected enemy locations and provide fire support that can deny the enemy use of likely escape routes. Once the assault force has been airlanded into the landing zone, the helicopter elements may execute a simulated landing into a dummy landing zone using the technique of offensive fire.

(6) *Troop-landing smoke screen system.* The use of nonpersistent-effect, harassing chemical agents in this method of preparation (for example, to prepare a landing zone) is one of the most effective means against well-intrenched enemy located on the perimeter, or in the vicinity of, the landing zone.

APPENDIX D

ASSEMBLY TECHNIQUES

D–1. General

This appendix outlines the techniques and aids suitable for conducting an assembly.

D–2. Assembly Techniques and Aids

a. Assembly plans are based on the use of one of the following techniques:

(1) Assembly by a subordinate unit independent of other subordinate units.

(2) Assembly by subordinate units in conjunction with other units (fig. D–1).

b. A thorough briefing on the assembly plan is conducted by all units. As time and facilities permit, maps, charts, aerial photographs, and sandtables should be used.

c. Assembly aids used at landing sites and strips are of three classifications—visual, audible, and electronic.

(1) *Visual assembly aids.* Panels, flags,

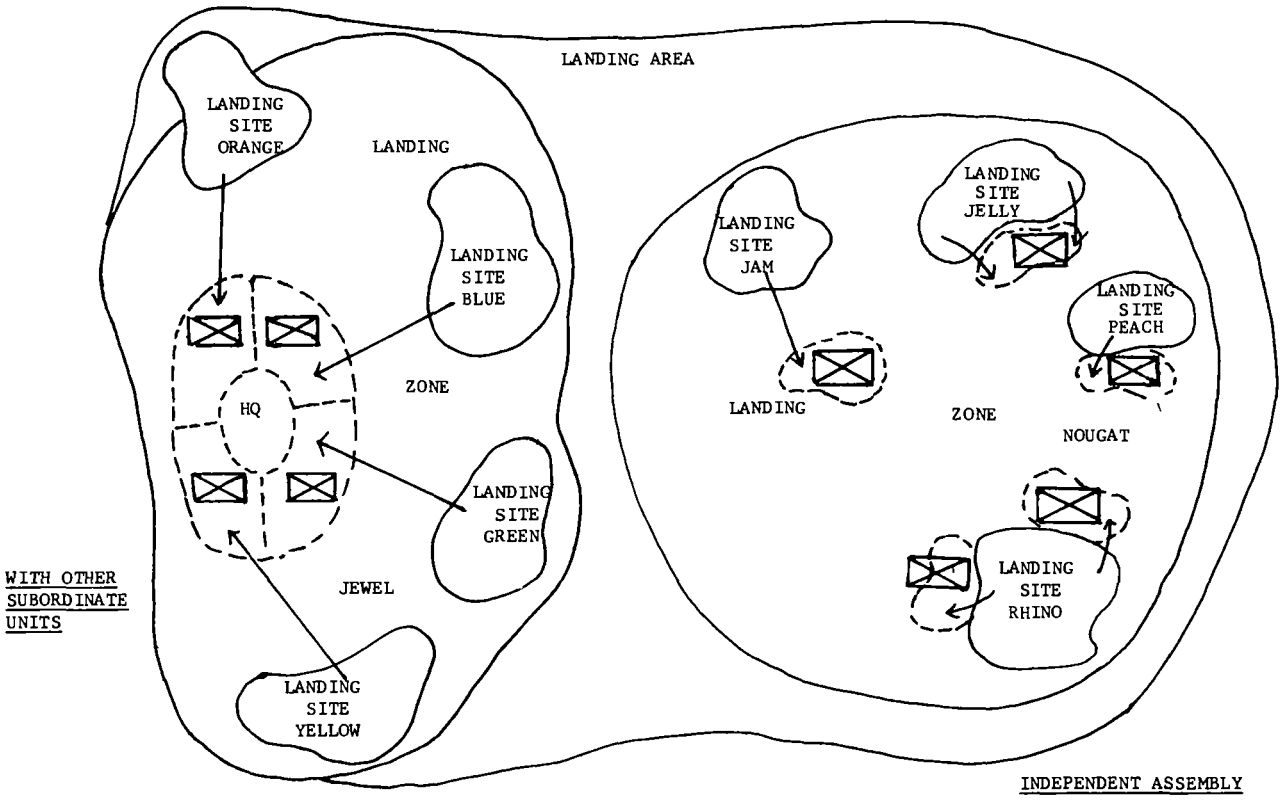


Figure D–1. Assembly of subordinate units.

smoke, and pyrotechnics are used in a variety of colors. The arrangement and color of a given aid on the periphery of the landing zone indicates the location of subordinate unit assembly areas. Additional visual aids may be used in the form of distinctive markings on the helmets of the troops of each subordinate unit or a bright strip of cloth (a different color for each unit) attached at a designated place on the men. Caution should be exercised that the use of smoke does not compromise the security of the assembly area and does not impede the operation of aircraft in the landing site or strip. Whenever possible, smoke should not be used as an assembly aid. The uncontrolled use of smoke can create confusion for inbound flights of aircraft and for aerial fire support means.

(2) *Audible assembly aids.* Audible aids include whistles, crickets, cowbells, bugles, and other devices that make a distinctive sound that can be heard above the sound of battle. Subordinate units can be briefed to assemble at the source of a specific sound. Consideration, however, must be given to the fact that aircraft noise may nullify these audible aids.

(3) *Electronic assembly aids.* Electronic aids include radio and radio homing devices. The organizational ground radio can assist in guiding troops to a given location when properly modified with the standard directional homing antenna (TM 1–225).

d. Personnel being transported in aircraft tend to become disoriented. If for any reason the aircraft is unable to land in the objective area on the heading given in the briefing prior to the conduct of the airmobile operation, some method should be announced that would give the passengers the heading of the aircraft upon landing. The crew chief of the aircraft can draw a sketch of the objective and designate what the heading of the aircraft will be upon landing (fig. D–2). This information would come from the aviator flying the aircraft and would be passed on to the senior supported unit member aboard the aircraft. This information should then be given to all personnel aboard the aircraft so that upon landing they will know what direction to take toward the assembly area. SOP of ground combat units should contain a method by which personnel will be informed of the relationships of the aircraft to the objective. Normally, the clock method of designating small unit area of responsibility is used. Aviators and crew chiefs will receive instructions on the use of this method during briefings. Outline of the helicopters may be imprinted on small cards. Pilot informs crew chief or senior supported unit member of direction to the primary objective in reference to the direction of landing using the clock system, e.g., "Objective at 3 o'clock." The person then informed draws a line on the card indicating the direction the troops are to move from the aircraft to the objective. It also reminds troops of the proper manner of movement around the aircraft if movement is necessary. This information is given to all personnel aboard the aircraft. Similar aids can be made for other rotary-wing and fixed-wing aircraft.

e. Generally, the same considerations apply to night and day assembly. Briefings, particularly on the aids used to support night assembly plans, are more detailed. Aircraft landing direction is emphasized for directional orientation in the landing zone. Emphasis is placed on the use of infrared and visible light sources. Codes are arranged at each light source to differentiate it from others and indicate subordinate unit assembly areas. Visible light sources are used in conjunction with a color scheme, but they must be carefully shielded. More time is needed to establish night assembly aids; this will increase the required assembly time.

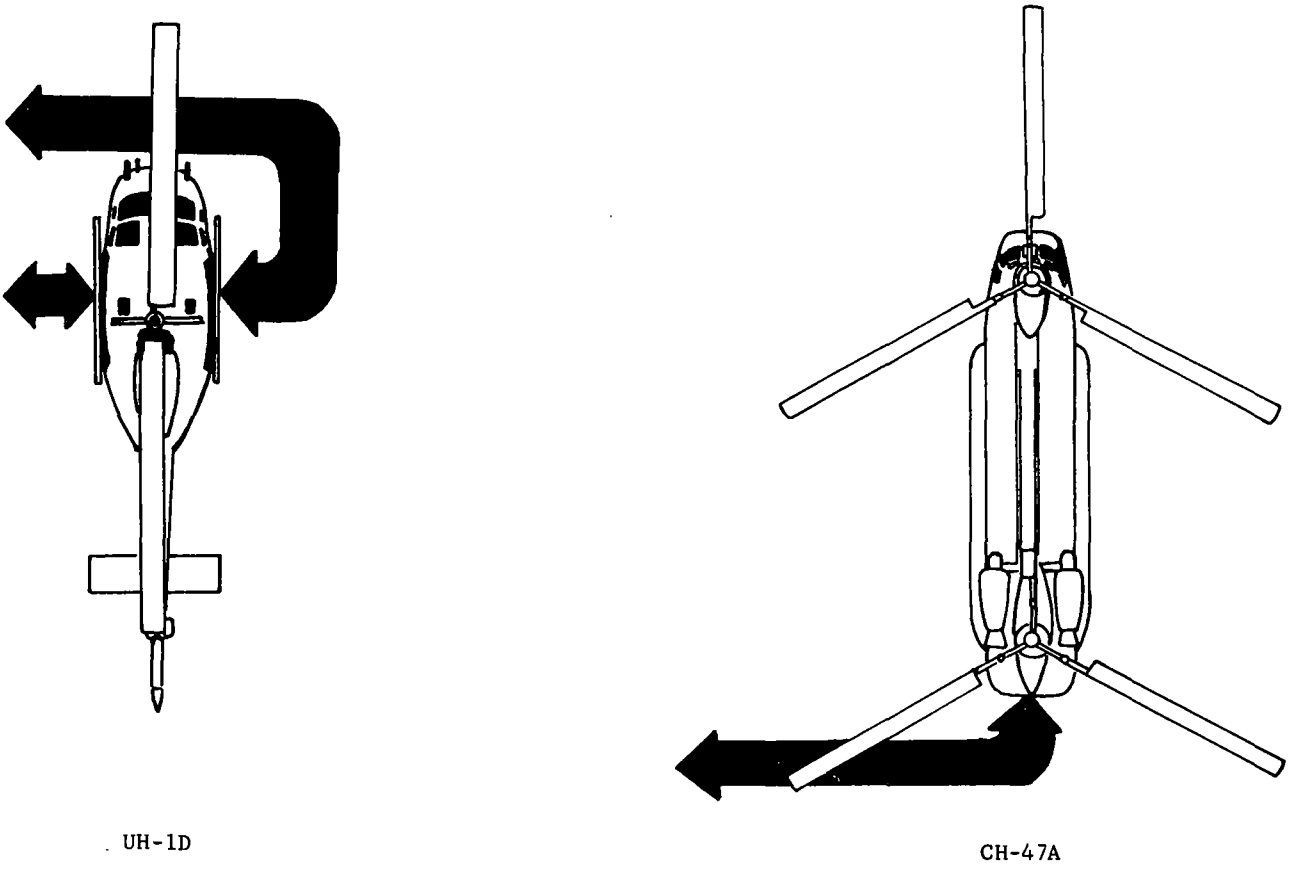


Figure D–2. Orientation aid, UH–1D and CH–47A helicopters.

APPENDIX E

AIRCRAFT LOADING DATA

E–1. General

a. This appendix discusses factors involved in loading Army aircraft.

b. In order to efficiently load an airmobile force aboard aircraft, commanders and staffs must be familiar with the exact composition of the airmobile force, the essential characteristics of the types of aircraft to be used for the operation, and the methods of computing aircraft requirements.

c. Maximum aircraft loads included in this appendix are based on the weight of tactical aircraft in the combat configuration, including armor plating, aircraft weapons systems, gunners, a full crew complement, and a full fuel load.

d. Maximum allowable aircraft loads are affected by altitude and temperature and will differ widely according to the topography and climatic conditions common to specific zones or areas of military operation.

Note. For the purpose of this text, an altitude of 1,500 feet (mean sea level) and an average temperature of 90° F. were selected arbitrarily in establishing type loads.

E–2. References

TM 57–210 provides detailed characteristics of Army aircraft, technical data and guidance for computing aircraft requirements and examples of detailed air-loading and movement forms. TM 55–405–9 provides aircraft weight and balance data.

Note. When computing requirements for parachutists, 260 pounds represents one space.

E–3. Essential Characteristics of Transport Aircraft

a. Weight Method.

(1) The weight method is used when the total weight to be transported is the determining factor. However, this method is not accurate enough to compute requirements for units that must transport major items of equipment and also maintain tactical integrity. Aircraft requirements are determined by dividing the allowable cargo load (payload) of each aircraft into the total weight of the force to be airlifted. Whenever the weight method is used, care must be taken so that any one load does not exceed the ACL of the aircraft being used and that any one piece of equipment is within the size and weight limit of the aircraft. This method of aircraft estimation is not particularly accurate and should not be used below division level.

(2) Example of UH–1D (–11 engine) using the weight method—

(*a*) Total weight to be transported: 60,970 pounds.

(*b*) Allowable cargo load: 1,700 pounds.

(*c*) 60,970 divided by 1,700 equals 35.8, or 36 UH–1Ds.

b. Space Method.

(1) The space method is a desirable method for rapidly computing aircraft requirements in airmobile operations for personnel, weapons, ammunition, and vehicles since the process provides a safety factor.

Note. This method can only be used when size and weight of equipment to be transported is compatible with type of aircraft to be used, e.g., a ¼-ton truck with 106-mm recoilless rifle mounted cannot be moved by a UH–1D.

The majority of the computations re-

mains constant and overall planning time is decreased.

(2) A space is defined as the weight of a fully combat-equipped soldier and is used as a denominator to convert the weight of major items of equipment and accompanying supplies into a common factor. A space is considered to be 240 pounds.

(3) In converting weight to spaces, consider only whole or half spaces by carrying fractions to the next higher half or whole space; for example, 10.1=10.5, 11.6=12.0.

(4) Convert major items of equipment such as vehicles, trailers, or heavy weapons into spaces by dividing the weight of each item by 240. If two or more items of the same type are to be transported, multiply the spaces required for a single item by the number of items. Convert additional assault supplies not carried by the individual soldier into spaces by dividing their total weight by 240.

(5) To determine the number of spaces each aircraft can provide, divide the allowable cargo load by 240. In converting allowable cargo loads to spaces, consider only half or whole spaces. Fraction will be reduced to the next lower half or whole space; for example, 22.8=22.5, 24.3=24.

(6) Example of using space method:

(*a*) Allowable cargo load, UH–1D, for 50 nautical radius equals 2,600 pounds.

$$\frac{2,600}{240} = 10.8 \text{ or } 10.5 \text{ spaces}$$

(*b*) Personnel and equipment to be transported and spaces required:

1. 174 personnel @240 pounds each—41,760 pounds Spaces required.

$$\frac{41,760}{240} = 174.0$$

2. Three each ¼-ton trucks @2,600 pounds each—7,800 pounds Spaces required.

$$\frac{7,800}{240} = 32.5$$

3. Three each ¼-ton trailers @900 pounds each (Loaded) 2700 pounds Spaces required.

$$\frac{2,700}{240} = 11.2 \text{ or } 11.5$$

4. Weight of supplies on initial lift 3,500 pounds
Spaces required.

$$\frac{3,500}{240} = 14.6 \text{ or } 15.0$$

(*c*) Required spaces Total of (6)(*b*)*1, 2, 3, 4,* above, 233.0

(*d*) Required UH–1D helicopters

Spaces Required / Space for 1 UH–1D $\frac{233.0}{10.5} = 22.1$ or 23 helicopters

c. Type Load Method.

(1) The type load method is the most efficient method to be used in the conduct of airmobile operations and in operational planning. Army aviation units are frequently required to support numerous major units operating over expansive tactical zones. Standardization of type loads within the theater of operation insures responsive and effective airmobility with a minimum of time required for planning. The use of type loads does not limit the flexibility of the ground tactical unit to be airlifted. The type load method can also be used at battalion and company level for planning and conduct of both airmobile and joint airborne operations.

(2) The use of type loads provides a drill-type of SOP operation, thereby reducing the time required for planning and computation and reducing the confusion and error common to airmobile operations conducted with minimum advanced notification.

d. Sample Type Loads.

(1) *UH–1D.* Maximum allowable load for the UH–1D (–11 engine) is 1,700 pounds. The criteria specified in paragraph E–1*c* and note at the end of

paragraph E–1 are applied. As fuel is reduced following the initial airlift, the troop load may be increased to eight or nine for subsequent lifts.

Type	Cargo	Weight	Total
1.	7 personnel	1,680	1,680
2.	Bulk cargo	1,700	1,700
3.	1 ea Mule (sling)	900	
	Load on Mule	800	1,700
4.	1 ea ¼–t tlr	565	
	Load on tlr (external load)	500	1,065

(2) *CH–47A.* CH–47-type load data is based on an aircraft maximum gross weight of 33,000 pounds on a standard day at mean sea level. As density altitude increases or when the aircraft is required to operate at higher altitudes, the payload is reduced accordingly.

Type	Cargo	Weight	Total
1.	20 personnel	4,800	
	1 ea A–22 container (sling load)	3,000	7,800
2.	8 personnel	1,920	
	Mules (loaded)	6,000	7,920
3.	22 personnel	5,280	
	3 ea 81mm mortars	282	
	150 rds ammo (sling load)	2,250	7,812
4.	16 personnel	3,840	
	2 ea mortars 4.2-in	1,200	
	100 rds ammo (sling load)	3,000	8,040
5.	6 personnel	1,440	
	1 ¼–t trk with ¼-t tlr	3,500	
	Sling load	3,000	7,940
6.	6 personnel	1,440	
	2 ¼–t trk	5,200	
	1 ¼-t tlr w/load	1,000	7,640
7.	3 personnel	720	
	1 M101A1 how w/sec equip	4,680	
	40 rds ammo	2,400	7,800
8.	130 rds 105 mm ammo	7,800	7,800
9.	2 personnel	480	
	1 ea ¾–t trk w/w	5,917	
	cargo	1,500	7,897
10.	3 personnel	720	
	1 ¼–t trk with ¼–t trl	3,870	
	1 Mule (loaded)	2,000	6,590
11.	4 personnel	960	
	1 ¼–t trk w/mrc 95 radio	3,000	
	1 ¼–t trk with ¼–t tlr	3,870	7,830
12.	33 personnel	7,920	7,920
13.	1 M102 how	3,195	7,225
	60 rds 105 mm ammo	3,600	
	equip	430	

(3) *CH–54A.* CH–54A-type load data are based on an aircraft maximum allowable gross weight of 38,000 pounds on a standard day at mean sea level. As density altitude increases or when the aircraft is required to operate at higher altitudes, the payload is reduced accordingly.

(*a*) *Data.*

Sea level — Fuel reserve, 1,000 lbs (20 min)

Standard day — Fuel consumption, 3,200 lbs per hour

Airspeed 90 knots — Distance in nautical miles

Crew 3 — Shape, size of load will reduce distance

(*b*) *Sample POD loads.*

Load	Weight (lbs)	Flight time	Approx dist
1. Mixed cargo	10,000	2+30	220
2. 1 ¾–t trk w/tlr	8,000	2+00	180
3. 150 rounds 105mm ammo (boxed)	17,000	0+17	25
4. 7,200 C-rations indiv	12,550	1+30	135
5. 67 troops at 240 lbs each	16,080	1+05	95

(*c*) *Sample 4-point loads.*

Load	Weight (lbs)	Flight time	Approx dist
1. 2 ½–t trk w/w	13,000	2+20	210
2. Road grader (front sec)	9,000	1+30	130
3. Road grader (rear sec)	14,000	1+30	130
4. HD6 Bulldozer	16,000	1+10	60
5. Personnel carrier M113	18,000	0+30	60

(*d*) *Sample single point loads.*

Load	Weight (lbs)	Flight time	Approx dist
1. 4 500-gallon fuel bags	13,200	1+30	120
2. CH–47 helicopter minus engines and blades	16,000	1+00	10
3. CH–34 helicopter complete	8,500	2+25	220
4. OV–1 Mohawk	12,000	2+00	180
5. 155mm how	14,000	1+30	120
6. 100 rds 155mm ammo	14,000	1+30	120

APPENDIX F

SAMPLE OPERATION ORDER

(CLASSIFICATION)

Copy No. 2
1–66 Inf
GO DAU HA (387252)
251000 Aug
SU37

OPORD 2–66 (Operation MANGLE)
Reference: Map, VIETNAM 1:50,000, GO DAU HA, Sheet 6244 II.

		Battalion control:
Task Organization:	A/1–66 Inf	C/1–21 Cav
	1/1/A/21 Engr	
	B/1–66 Inf	
	1/A/21 Engr (–)	A/1–45 Arty (DS)
	C/1–66 Inf	
	2/1/A/21 Engr	145th Avn Bn (Op Con)
	D/1–66 Inf	

1. SITUATION

a. Enemy Forces: (Annex A, Intelligence)

b. Friendly Forces:

(1) 1st Inf Bde (–) remains in present location.

(2) 9th Inf Div ARVN continues denial operations along border to west of OBJ RED.

(3) 10th Inf Div ARVN continues denial operations north of the Saigon River.

(4) 1–67 Inf Bn continues civic action program.

(5) 1-68 Inf Bn, reserve. Secures staging area at 382334 vic GO DAU HA (3825).

(6) 1–45 Arty (–) GS to 1st Inf Bde.

(7) 145th Avn Bn supports 1–66 Inf Bn.

(8) 9th TAF supports attack.

c. Attachments and Detachments: See task organization.

2. MISSION

1–66 Inf conducts an airmobile assault to seize landing zones vic 60752365, 61202340, and 59402680, commencing 280600 Aug; secures landing zones; moves to establish battalion base vic 60252410 and prepares

(CLASSIFICATION)

(CLASSIFICATION)

to conduct search and clear operations within TAOR RED to locate and destroy enemy forces. On order, extraction to new area of operations.

3. EXECUTION

a. Concept of Operations:

(1) Maneuver: Annex B, Operation Overlay.

(a) Phase I. 1–66 Inf outloads from staging area 382334 and assaults and secures LZ WARRIOR, STALWART, and JAM with Co A, B, and C, respectively. 1–66 Inf continues the attack to seize OBJ A, B, and C with Co A, B, and C, respectively. Co D, reserve, remains in GO DAU HA and constitutes airmobile reaction force.

(b) Phase II. On order, 1–66 Inf conducts search and clear operations in TAOR RED.

(c) Phase III. On order, extraction to new area of operations.

(2) Fires: Close air support begins H–10, ends H–5 on preplanned targets and the landing zone areas; thereafter, on call. Artillery preparatory fires on landing zones from H–4 to H–2, thereafter, on call (Annex C, Fire Support).

b. Co A:

(1) Seize and secure OBJ A.

(2) On order, conduct search and clear operations within zone.

c. Co B:

(1) Seize and secure OBJ B.

(2) On order, conduct search and clear operations within zone.

d. Co C:

(1) Seize and secure OBJ C.

(2) On order, establish blocking positions X and Y and prevent enemy forces from escaping north.

e. Co D:

(1) By H+50, be on station over LZ WARRIOR to engage in airmobile assaults as required.

(2) Prepare to establish blocking positions D and T; block enemy movement to east.

f. C/1–21 Cav:

(1) Maintain reconnaissance and security flights west and north of LZ JAM. (See Annex D, Patrol Plan.)

(2) Block enemy reinforcement from north.

g. Recon Plat:

(1) Screen battalion base.

(2) Provide timely warning of enemy approach.

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(CLASSIFICATION)

h. Heavy Mortar Plat: GS

i. AT Plat: GS

j. 145th Avn Bn:

(1) With three airmobile companies, conduct company-size lifts from staging area 382334 into LZ WARRIOR, STALWART, and JAM, commencing 280600 Aug.

(2) Be prepared to lift battalion reserve from GO DAU HA to vic LZ WARRIOR commencing 280650 Aug.

(3) Be prepared to execute resupply, medevac, and GS missions as required.

(4) Be prepared to extract lifted force on order.

k. Coordinating Instructions:

(1) H-hour is 280600 Aug.

(2) Attachments effective 280300 Aug.

(3) Heavy Mortar Plat will substitute 81mm mortar for 4.2-inch mortar.

(4) Companies will not take 81mm mortar and 106mm RR.

(5) Battalion Ground Surveillance Sec remains with rear echelon.

(6) All ground vehicles remain with rear echelon.

(7) Battalion rear echelon under control of S–4.

(8) Co A and B move across phaselines and checkpoints on order.

(9) Fire coordination line is east-west line 594258, 598259, and 604264.

(10) Aircraft allocation and movement data:

(a) Route GREEN is primary route for approach, alternate for return; Route BLACK is alternate route for approach, primary for return; Route BLUE is alternate route for return. (See Annex E, Appendix 1.)

(b) Formation: Heavy left.

(c) Actual altitude: Nap-of-the-earth.

(d) Speed: 80 knots.

(e) Type loads: 6 spaces/UH–1D.

(f) Air movement table (Annex E, Appendix 2).

4. ADMINISTRATION AND LOGISTICS. Annex F.

5. COMMAND AND SIGNAL.

a. Signal.

(1) Current SOI/SSI in effect.

(2) Challenge and password: ROLL—TIDE.

(3) Security of landing zones: Green smoke grenade.

(4) Enemy contact: Yellow smoke grenade.

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(CLASSIFICATION)

(5) Airstrikes: White smoke grenade.
(6) Emergency: Red smoke grenade.
(7) Medical evacuation: Violet smoke grenade, day; red star cluster, night.

b. Command.
(1) Battalion commander: Moves with HHC.
(2) Succession of command: Battalion tactical SOP (TSOP).

Acknowledge

GILE
LTC

Distribution: A

Annexes: A—Intelligence*
B—Operation Overlay
C—Fire Support*
D—Patrol Plan*
E—Air Movement Plan*
Appendix 1—Flight Route
Appendix 2—Air Movement Table
F—Administration and Logistics*
Appendix 3—Air Landing Table*
Appendix 4—Air Traffic Control*

OFFICIAL:

s/MILLER

S–3

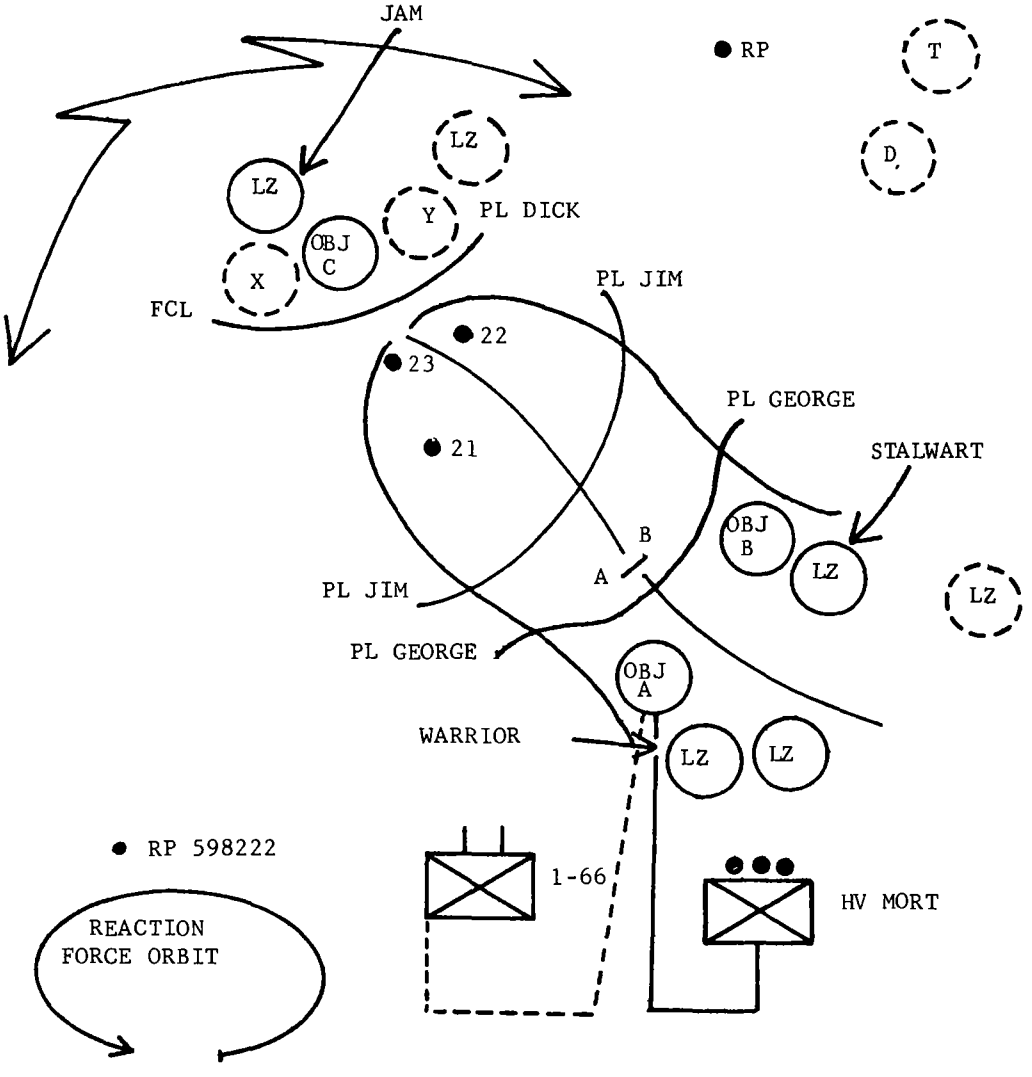
*Not illustrated in this order

(CLASSIFICATION)

(CLASSIFICATION)

ANNEX B
OPORD 2-66 (OPERATION MANGLE)
Reference: Map, VIET NAM 1:50,000 (6244 II), GO DAU HA

28 62



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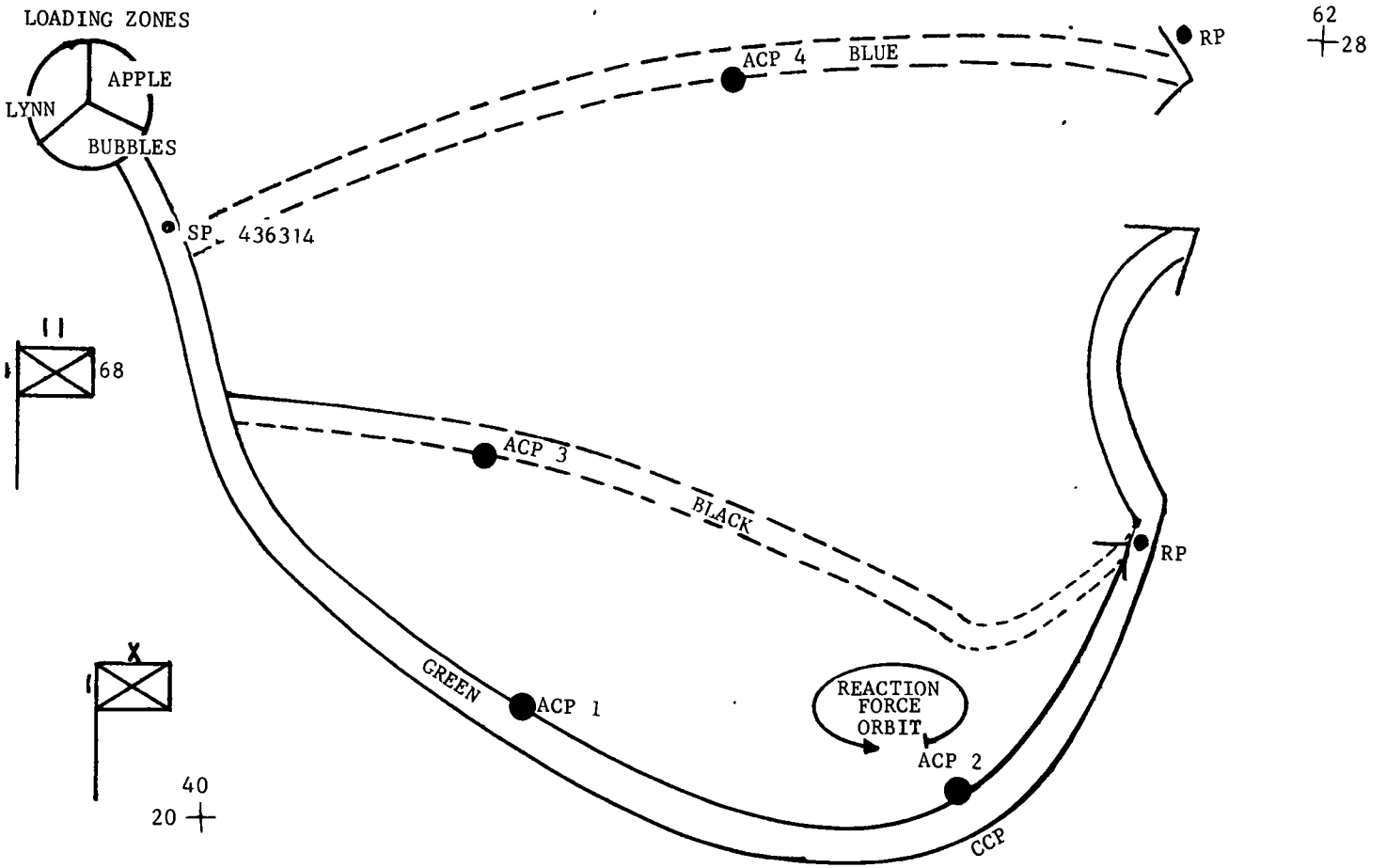

ANNEX E, APPENDIX 1
OPORD 2-66 (OPERATION MANGLE)
Reference: MAP, VIETNAM 1:50,000(6244 II)
GO DAU HA (387252)
(Not to Scale)

ALTERNATE ROUTE - - - - -

PRIMARY ROUTE ———

(CLASSIFICATION)

TRANSPORTING UNIT	TRANSPORTED UNIT	SERIAL	CHALK NO.	LOADING ZONE	LOADING TIME	TAKEOFF TIME	LANDING ZONE	LANDING TIME
145th Avn Bn	Co B	1	1–24	APPLE	0544	0547	STALWART	0600
145th Avn Bn	Co A	2	25–48	BUBBLES	0546	0549	WARRIOR	0600
145th Avn Bn	Co C	3	49–63	LYNN	0548	0551	JAM	0607
145th Avn Bn	***	***		***	***	***	***	****

(*Note:* Abbreviated Air Movement Table)

ANNEX E, APPENDIX 2
OPORD 2–66 (OPERATION MANGLE)
Reference: MAP, VIETNAM 1:50,000 (6244II)
GO DAU HA (387252)

(CLASSIFICATION)

APPENDIX G

STANDING OPERATING PROCEDURES

(CLASSIFICATION)

Copy No. _____
_____ Bn, _____
APO_____, U.S. ARMY
15 Nov 19____

Annex E (Airmobile Operations) to SOP No. 1

1. PURPOSE

This annex prescribes the organization and procedures to be followed in preparing and executing airmobile operations to facilitate planning, coordination and control. Only the procedures peculiar to this type operation are included; otherwise, basic SOP applies.

2. PERSONNEL

a. Strengths, Records, and Reports.

(1) As soon as practicable after receiving warning order units submit report, by company, of number of men in assault echelon and in the rear echelon.

(2) Strength message submitted as soon as practicable after landing.

b. Discipline, Law, and Order.

(1) Straggler control responsibility of subordinate units of the assault echelon initially on landing.

(2) Personnel landed in other than assigned zones within the objective area join the first friendly unit encountered. Rejoin parent unit when ordered by this headquarters.

(3) Stragglers integrated from other units reported as soon as practicable to this headquarters by name and organization.

c. PW. PW's evacuated on backhaul with guard direct to brigade. PW collecting point.

d. Graves Registration. Deceased personnel evacuated on backhaul to brigade logistical base.

3. INTELLIGENCE

a. Weather.

(1) Long-period forecast immediately after receipt of mission.

(CLASSIFICATION)

(2) Short-period forecasts up to takeoff time.

(3) Weather minimums established by this headquarters. When weather is below established minimums, operations executed only on specific instructions of this headquarters.

b. Terrain.

(1) Maps and airphotos obtained and disseminated to company level in this priority:

(a) Large-scale map coverage of objective area.

(b) Large-scale, low-oblique airphotos of objective area with emphasis on landing zones and objectives.

(c) Appropriate scale map coverage of terrain in flight corridors.

(2) Maximum use of terrain models (sandtables) for briefings.

c. Counterintelligence.

(1) All planning conducted in area with maximum security.

(2) No marked maps, photos, sketches, or combat orders carried into objective area with assault echelon.

d. Escape and Evasion. Personnel in aircraft forced to land between LZ and objective area will take the following action:

(1) If practicable, move overland immediately to join friendly units.

(2) If not practicable to move overland to joint friendly units, mark a suitable landing site in the vicinity of downed aircraft for evacuation by aircraft, if the enemy situation and terrain permit.

(3) If (1) and (2) above are precluded by pursuing enemy, evade capture and attempt to join friendly units by infiltration. Continuous attempts will be made to locate suitable sites for evacuation by aircraft.

4. OPERATIONS

a. Planning.

(1) Except when accomplished by higher headquarters, this headquarters will accomplish the following planning for all airmobile operations (subordinate units participate in planning):

(a) Determine the size and composition of the force required to execute the mission.

(b) Allocate lift aircraft for the operation and notify subordinate units of allowable cargo load.

(c) Approve approach, return, alternate routes, and route corridors.

(d) Approve altitudes and formations to be flown.

(e) Approve loading areas to be used by participating units.

(2) Lift aviation mission commander will assist airlifted units in planning movement.

b. Training and Rehearsals.
   (1) Prior to executing an airmmobile operation, participating personnel will receive instruction in the following:
      (a) Conduct of airmobile operations.
      (b) Indoctrination in psychological problems inherent in airmobile operations.
      (c) Familiarization with loading, lashing, and unloading of type aircraft to be employed. (Aircraft requested by this headquarters.)
      (d) Assembly techniques.
      (e) Escape and evasion tactics.
   (2) Situation permitting, rehearsals will be conducted by participating units on terrain similar to proposed objective area. Maximum use will be made of sandtables and terrain models in conjunction with large-scale oblique photos and maps of the objective area.
   (3) Companies maintain personnel trained in the conduct of unit terminal guidance techniques.

c. Loading.
   (1) Loading areas designated by this headquarters.
   (2) Flight serials broken down into flight units as required by the movement, landing, and ground tactical plans.
   (3) Aircraft arrive at approved loading sites, by fight units, at the latest possible time. Individual aircraft within flight units marked according to air loading tables prior to arrival. Marking is the responsibility of the transport aviation unit.
   (4) Supporting transport aviation units assist in the planning for the execution of loading by providing technical advice and supervision.
   (5) Troop commander supervises aircraft landing. Pilot responsible for flight safety.
   (6) Cargo or equipment to be transported externally secured in cargo nets or slung in pallets for transit by use of the cargo sling on the helicopter, or rigged for attachment to bomb shackles in fixed-wing aircraft. Attachment of these loads to the aircraft accomplished by personnel other than those listed as passengers.
   (7) When loading personnel or cargo into an aircraft, the troop commander insures that—
      (a) All of the safety measures prescribed for movement in and about the particular type aircraft are observed.
      (b) In loading helicopters all radio antennas will be removed or bent in such a manner to preclude contact with rotor blades or cargo compartment.
      (c) In loading helicopters all personnel approach the helicopters from the direction of the nose unless otherwise directed.
      (d) In loading fixed-wing aircraft, personnel approach from the rear.

(e) Machineguns or automatic weapons are loaded last.

(8) After all equipment and personnel have been loaded, the troop commander determines that—

(a) The equipment and cargo are in their proper place.

(b) The cargo or equipment required to be lashed is properly secured.

(c) Each man is seated and has his safetybelt fastened.

(d) Cargo compartment door is closed and locked, or safety strap across door is properly fastened, as directed for the operation.

(9) Briefing on emergency signals conducted by aviation unit representative prior to loading.

(10) When the troop commander has checked to insure that all cargo and personnel are secured, he will notify the crew chief verbally.

(11) During flight the pilot commands the aircraft. Troop commander insures that—

(a) Cargo lashings (if applicable) are checked frequently to determine that cargo is properly secured.

(b) Troops keep safetybelts secured and do not smoke unless authorized.

(c) Troops stay seated and do not move around in the cargo compartment without proper authorization.

d. Air Movement.

(1) When available, pathfinder teams may be employed to assist in movement control along flight routes and within landing zones.

(2) Air control points (minimum of an SP and RP) designated to assist movement control.

(3) Time of takeoff, arrival at air control points, and landing, will be specified in air movement tables, insofar as possible. Inability to comply with specified control times to be reported by flight serial commanders.

e. Unloading.

(1) The pilot notifies the troop commander when the aircraft is four minutes out from the landing site. The troop commander then alerts members of the unit to be prepared to unload.

(2) No movement made in the cargo compartment until clearance has been obtained from the pilot. After the pilot gives the clearance signal, the commander of the troops has them release their safetybelts and has the cargo unlashed if applicable. He will then have the cargo door opened and have the troops and equipment unloaded in reverse order from that in which the aircraft was loaded.

(3) After all troops and cargo have been unloaded from the aircraft, a man designated by the troop commander will insure the cargo compartment is empty and signal the crew chief.

(4) The troop commander insures that members of his unit clear

the landing zone in a safe, expeditious manner to prevent exposing personnel to unnecessary danger and to prevent any delay in other takeoff or landing procedures.

(5) The troop commander will insure that security is placed around the landing zone until all aircraft are out.

(6) Indigenous personnel in objective area utilized upon approval this headquarters only.

5. LOGISTICS

a. Supply.

(1) Accompanying supplies (all classes). Prescribed load announced by this headquarters for each operation. Followup and routine supplies planned by this headquarters.

(2) Salvage.

(a) Expedite recovery of aerial delivery containers, parachutes, cargo nets, and pallets. Commanders insure against damage or destruction.

(b) Units in objective area established salvage collecting points when appropriate and practicable.

(c) Salvage reported to this headquarters for disposition instructions.

(3) Captured materiel. Captured materiel may be used by capturing units. Captured munitions and fuel may be used on approval this headquarters.

b. Medical Service.

(1) Evacuate by air until linkup or extraction.

(2) All medical air ambulances carry blankets, litters, and other appropriate medical equipment.

(3) All air crash rescue aircraft carry appropriate firefighting, rescue, and medical equipment.

c. Transportation and Troop Movement.

(1) Motor.

(a) Allocation of accompanying organic transport and disposition of APC by this headquarters.

(b) Maximum use of captured vehicles to meet motor transportation requirements.

(2) Aircraft. Allocation of supporting transport aircraft by this headquarters.

d. Service.

(1) When required, contact teams will be provided participating units on request.

(2) On linkup, nearest supporting units provide necessary service.

GILE
LTC

Distribution: A
OFFICIAL:
FISK
S3

(CLASSIFICATION)

APPENDIX H

AIRMOBILE PLANNING AND OPERATIONS CHECKLISTS

Section I. AIRMOBILE PLANNING AND OPERATIONS CHECKLISTS

1. GROUND TACTICAL PLAN

a. Mission(s).

b. Objective(s).

c. Alternate objective(s).

d. Distance to objective(s).

e. D-day and H-hour.

f. Special tasks.

g. Means available:

(1) Organic troops.

(2) Troop lift helicopter.

(3) CH–47 support.

(4) CV2, C123, C130 support.

(5) Air cavalry.

(6) Engineer.

(7) Signal.

(8) Aerial radio relay.

(9) Medical.

h. Fire support:

(1) Tactical air support.

(2) Ground artillery.

(3) Aerial artillery.

(4) Armed helicopters.

(5) Naval gunfire support.

(6) Marine air support.

(7) Naval air support.

i. Boundaries and control measures.

j. Assault plan.

k. Subsequent operations.

l. Rehearsals desired.

2. INTELLIGENCE REQUIREMENTS

a. Security measures.

b. Enemy locations.

c. Commanders' reconnaissance of objective area.

d. Aerial photos.

e. Maps.

f. Terrain study.

g. Weather forecast.

h. Map reference system.

i. Latest intelligence summary.

j. SOI/SSI.

3. ASSAULT LANDING PLAN

a. Landing zones (to include identification procedures):

(1) Colored smoke.

(2) Panels.

(3) Flares.

b. Assault landing formation.

c. Approach and landing direction.

d. Use of armed helicopters.

e. Other covering fires.

f. Pathfinders required.

4. AIR MOVEMENT PLAN

a. Flight routes (primary, alternate, return):

(1) Release points—direction and distance to landing zones.

(2) En route formation.

(3) ACPs—CCPs.

(4) Phase lines (if used).

(5) Leg distance and times.

(6) Estimated time en route.

(7) Altitudes.

(8) Airspeed.

(9) Orbit areas for reaction forces and armed helicopter escort, if applicable.

(10) Laager areas, to include mission and security.

(11) Orbit areas for eagle flights.

b. Air movement table:

(1) Unit to be lifted.

(2) Number and type lift helicopters.

(3) Aviation units.

(4) Takeoff times.

(5) Routes.

(6) Unit landing zones.

(7) H-hour (landing time).

c. Alternate communications plan:

(1) FM.

(2) UHF.

d. Staging plan:

(1) Staging airfield.

(2) Assembly areas.

(3) Unit pickup zones (primary, alternate).

(4) Pickup zone release point.

e. Armed helicopter utilization:

(1) En route to pickup zone.

(2) Pickup zone.

(3) En route to release point.

5. SUPPORTING PLANS

a. Alternate plans and procedures due to weather.

b. Downed aircraft procedures:

(1) Crew.

(2) Aircraft.

c. Rally points.

d. Escape and evasion instructions.

e. Eagle flights.

f. Laager plans.

g. Rules of engagement.

h. Deception plans.

i. Spare aircraft for maintenance emergencies.

j. CBR.

k. Reconnaissance (air-ground).

l. Straggler control.

m. Reporting (en route, liftoff, touchdown, intelligence, and contact).

n. Aircraft disposition after assault.

o. POW plan.

6. OPERATIONS REQUIREMENTS

a. Warning orders.

b. LNOs (receive and dispatch).

c. Attachments and detachments.

d. Briefings (time and place).

e. Preparation of OPORD.

7. LOGISTICS REQUIREMENTS

a. Class V resupply.

b. Feeding plan.

c. Water.

d. Medical.

e. Refueling.

f. Air crash rescue.

8. DEBRIEFING

a. Lessons learned:

(1) Ground units.

(2) Aviation units.

b. Actions taken for correction.

9. ADVANCE PLANNING FOR SUBSEQUENT OPERATION

Section II. AVIATION MISSION COMMANDER CHECKLIST

10. MISSION

11. ALERT UNIT TO MISSION

12. ESTABLISH LIAISON WITH SUPPORTED UNIT

13. SITUATION

a. Enemy.

b. Friendly.

14. SUPPORTED UNITS GENERAL CONCEPT OF OPERATION

15. RECONNAISSANCE

a. Pickup zones:

(1) Size, shape, condition.

(2) Approach, departure routes.

b. Possible flight routes:

(1) SPs.

(2) ACPs.

(3) RPs and CCPs.

(4) Altitudes.

c. Objective area:

(1) Selection of landing zones:

(*a*) Size, shape, condition.

(*b*) Approach, departure routes.

(*c*) Likely enemy positions.

(2) Armed helicopter orbit areas.

16. MISSION PLANNING

a. Airmobile task force commander.

b. D-day and H-hour.

c. Allowable cargo loads.

d. Landing zones:

(1) Number of aircraft.

(2) Formation.

(3) Fire support plan:

(*a*) Naval gunfire.

(*b*) Air Force.

(*c*) Artillery.

(*d*) Armed helicopters.

e. Flight route:

(1) RPs and CCPs.

(2) ACPs.

(3) SPs.

(4) Time, distance, and headings.

(5) Fire support and escort plan.

f. Pickup zones:

(1) Times.

(2) Number of aircraft.

(3) Loading.

(4) Location and identification of internal and external cargo loads.

(5) Troop load organization of supported unit.

g. Refueling:

(1) Location.

(2) Security.

(3) Time required for complete refueling.

h. Troop lift schedule (subsequent lifts).

i. Communications:

(1) Supported unit frequency and call sign.

(2) Lift frequency and call sign.

(3) Armed helicopter frequency and call sign.

(4) FSCOORD frequency and call sign.

j. Pathfinder support.

k. Additional aviation support units (i.e., CH–47, CH–54):

(1) Utilization.

(2) Integration plan (if required).

l. Reaction force requirements:

(1) Supported unit.

(2) A/C required.

(3) Laager area.

(4) Alert status.

m. Subsequent armed helicopter requirements:

(1) Orbit area or reporting place.

(2) Supported unit(s).

(3) Call sign and frequency.

(4) Number of aircraft and relief plan.

n. Additional general support aviation requirements:

(1) Logistics.

(2) Airborne command post.

(3) Aerial surveillance.

o. Aeromedical evacuation and air crash rescue.

p. Aircraft maintenance support:

(1) Unit.

(2) Recovery plan.

q. Proposed aircraft release times.

17. AVIATION UNIT BRIEFING

a. Time/place.

b. Location.

c. Units to attend.

Section III. FRAG ORDER CHECKLIST

18. *a.* AMTF Mission_____
    b. Avn Mission_____

19. *a.* AMTF Comd _____ *b.* Avn Msn Comd_____

20. *a.* PZ location_____ *b.* PZ arrival times_____
    c. PZ landing azimuth_____
    d. PZ loading instructions_____
    e. PZ control procedures_____

21. *a.* SP location & arrival times_____
    b. Alt SP & arrival times_____
    c. En route formations_____
    d. RP location & arrival times_____
    e. Alt RP & arrival times_____

22. *a.* LZ location & arrival times_____
    b. Alt LZ location_____ *c.* LZ landing azimuth_____
    d. LZ control procedures _____ *e.* Landing formations_____

23. *a.* Arty fire spt_____ *b.* Armed helicopter fire spt_____
    c. USAF fire spt_____ *d.* Other_____

24. *a.* Refueling instructions_____
    b. Ammo resupply instructions_____

25. *a.* Essential radio frequencies_____
    b. Pyrotechnic & other color codes_____
    c. Briefing instructions_____
    d. Debriefing instructions_____
    e. Time check_____

Section IV. LIAISON OFFICER CHECKLIST (HELICOPTER)

26. ACTIONS PRIOR TO DEPARTURE TO SUPPORTED UNIT

a. Obtain briefing from S3:
- (1) Current unit status (mission readiness).
- (2) Mission requirements (supported unit).
- (3) Specific problem areas.
- (4) Communications.

b. Check out with CO.

c. Obtain necessary equipment:
- (1) Communications.
- (2) Maps, overlays, SOI extracts.
- (3) Transportation.
- (4) Personal gear.

27. ACTIONS AT SUPPORTED UNIT

a. Establish communications.

b. Contact CO of S3:
- (1) Enemy situation and trend.
- (2) Mission.
- (3) Supported ground units.
- (4) Other supporting aviation units.
- (5) Pickup zone (time, location, formation, loads, pickup zone release point, size).
- (6) En route (initial point, air control point(s), formation, communications checkpoint, landing zones, formation).
- (7) Assault (landing zone release point, landing zones, formation).
- (8) Alternate flight routes.
- (9) Escort procedures.
- (10) Air Force support.
- (11) Return mission and subsequent lifts.
- (12) Communications.
- (13) Artillery fires support plan.
- (14) Refueling.
- (15) Aircraft maintenance.

c. Disseminate necessary information to your unit.

d. Maintain close coordination with S3.

e. Monitor situation.

f. Keep your unit informed.

g. Advise on employment of your unit (be aggressive).

h. Prior to returning to your unit:
- (1) Obtain copies of current operations orders, plans, overlays, SITREPS.
- (2) Times and location of pertinent conferences.
- (3) Current situation.

28. ACTIONS UPON RETURN TO UNIT

a. Brief the S3.

b. Check in with CO.

Section V. LIAISON OFFICER CHECKLIST (AIRPLANE)

29. SUPPORTED UNIT

30. CONTACT OFFICER

a. Location.

b. Time to be loaded.

31. TYPE OF MISSION

32. SITUATION

a. Enemy.

b. Friendly.

c. Ground tactical plan of supported units.

33. PLAN OF EXECUTION

a. Time to report.

b. Suggested routes.

c. Flight altitudes to be flown.

d. Departure point, checkpoints, and release points.

e. Control of flight.

f. Spare aircraft allocated and procedures for employment.

34. LOADING AREA

a. Coordinates.

b. Description.
c. Marking.
d. Ground control frequencies and call signs.
e. Officer in charge.
f. Loading plan:
(1) General plan.
(2) Priorities.
(3) Aircraft chalking or marking procedures.
(4) Manifesting procedures to be employed and responsibility for preparation.
(5) Traffic pattern.

35. LANDING ZONE
a. Coordinates.
b. Description.
c. Marking.
d. Ground control frequencies and call signs.
e. Landing plan.
f. Traffic pattern.

36. REFUELING FACILITIES
a. Location.
b. Capabilities, requirements, and procedures.

37. AIR SUPPORT

38. ARTILLERY

39. ALTERNATE PLANS
a. Weather abort.
b. Mechanical abort.
c. Loss of communications.
d. Enemy actions.

40. WEATHER INFORMATION AND BRIEFING

41. MISSION DEBRIEFING

42. REHEARSALS AND TRAINING PROCEDURES (IF APPLICABLE)

43. REMARKS

Section VI. MISSION DEBRIEFING CHECKLIST

44. ESTIMATE OF MISSION RESULTS (DEGREE TO WHICH MISSION WAS ACCOMPLISHED)

45. ENEMY ACTIVITY ENCOUNTERED OR OBSERVED DURING MISSION. REPORT IN FOLLOWING SEQUENCE:

a. Line A: WHO made the sighting or observation (aircraft, mission number and type of mission, if applicable, patrol, higher or adjacent units).

b. Line B: WHAT was observed—(enemy, unknown or friendly forces; strength and type of target—tanks, infantry, patrol, bivouac area, include number of items observed; and what they were doing—halted, digging in, moving—if moved, include directions of movement).

c. Line C: WHERE was the activity sighted (UTM coordinates or cardinal point from geographic location in the clear if the report is of enemy activity).

d. Line D: WERE spot (hot) reports made, and if so, to whom (if applicable).

e. Line E: Damage reports (if applicable).

46. ESTIMATE OF AVIATION PORTION OF MISSION:

a. Conduct of operation in the PZ. As planned? Problems?

b. Flight route and checkpoints. Adequate? Easily identified?

c. Formation and altitude. Most suitable?

d. Activity in the landing zone. As planned? Alternate?

e. Communications. Adequate? Excessive?
(1) Air-air.
(2) Air-ground.
(3) SOI–SSI.

47. AIRCRAFT AND PERSONNEL DAMAGE
a. Personnel (Casualty, combat or noncombat)
b. Aircraft. What-When-Where-How.

48. REFUELING AND MAINTENANCE PROBLEMS

49. LESSONS LEARNED

50. RECOMMENDATIONS

Section VII. FLIGHT SURGEON CHECKLIST

51. PREPLANNING PHASE

a. Evaluate current health status of personnel.

(1) "Know your people."
(2) Review all medical records.
(3) Review all dental records (identification).

b. Apprise commander of health of the command.

c. Maintain active preventive support program.

(1) Medical inspection of environmental conditions.
(2) Conduct training for organic personnel.
  (*a*) Emergency medical treatment.
  (*b*) Patient loading and use of hoist.
  (*c*) Aviation safety.
  (*d*) Personal protective equipment.
(3) Surveillance of organic medical posture.
  (*a*) Personnel.
  (*b*) Supplies and equipment.
  (*c*) Facilities.
(4) Preparation of specific SOPs, policies, and directives.

52. PLANNING PHASE

a. Gather all data pertinent to the medical support of the operation.

(1) Number of organic aviation personnel utilized.
(2) Geographic location of operation.
(3) Estimated time of operation and its duration.
(4) Estimated security of operation.
(5) Perform aerial reconnaissance of operational area.

b. Develop a medical plan for use of organic aircraft for aeromedical support.

c. Evaluate requirements for medical support at staging area (unit airmobile aid station).

(1) Personnel.
  (*a*) Flight surgeon.
  (*b*) Aidmen.
(2) Function.
  (*a*) Establish airmobile aid station at staging area.
  (*b*) Coordination with battalion surgeon and nonorganic medics for operational contingencies.
  (*c*) Provide primary medical care as follows:
    1. Maintain respiration and relieve respiratory obstruction.
    2. Control hemorrhage and shock.
    3. Hydration.
    4. Dressing of wound.
    5. Splinting of fracture.
    6. Control of infection.
  (*d*) Treatment limited to lifesaving measures.
(3) Equipment (minimum).
  (*a*) Kitchen tent with poles and supports.
  (*b*) Red Cross flag.
  (*c*) Smoke markers.
  (*d*) 2 folding litters with stands.
  (*e*) Medical field supply case with supplemental bags for:
    1. Assorted battle dressing.
    2. Emergency medication.
    3. Routine medication.
    4. 3 bottles 5% Dextrose.
    5. 6 bottles Dextran.
    6. 3 bottles 5% dextrose/saline.
    7. Tracheotomy set.
    8. 3 suture sets.
  (*f*) Flight surgeon medical/surgical set.
  (*g*) AN/PRC–25 for monitoring aeromedical evacuation frequency.
  (*h*) Ambulance resuscitator if available.
  (*i*) Special mission equipment.
    1. Coleman lantern.
    2. CP tent.
    3. Protective masks.
    4. Decontamination kit(s).

d. Coordination with area hospital and treatment facilities.

e. Coordination with medical evacuation unit commander.

(1) Number of air ambulance and air crash rescue ships (estimated).

(2) Type of mission support and distance.

(3) Radio frequencies and call signs.

(4) Standard landing area markings.

(5) Evaluation of evacuation aircraft available from adjacent operations.

f. Coordination of overall aeromedical plan with commander and supporting units.

g. Report procedures material.

(1) FMC DD Form 1380 prepared on all patients.

(2) After action report relayed within 24 hours, post operation through command channels.

53. BRIEFING PHASE

a. Flight surgeon participates actively in mission briefing.

(1) Provides commander with current status of health of the command.

(2) Provides revised estimates of medical requirements.

(3) Accounts for all possible medical contingencies.

b. Final coordination of aeromedical evacuation coverage.

(1) Establish radio frequencies and call signs.

(2) Establish staging area and collecting points.

(3) Review possible requirements for utilization of organic aircraft for evacuation.

c. Establish means for moving medical personnel, equipment, and supplies to staging area.

d. Final coordination of air crash.

54. EXECUTION PHASE

a. Move medical personnel, equipment and supplies to staging area.

b. Perform final reconnaissance of tactical area. Return to staging or PZ area as required.

c. Provide primary medical care at staging area as required.

d. Provide initial and continued direction of organic medical evacuation activities.

(1) Patient load.

(2) Location of patients.

(3) Nature and severity of injuries.

(4) Destination of patients under contingency conditions.

55. POSTOPERATIONAL PHASE

a. Active participation in mission debriefing.

b. Review overall medical support of operation.

c. Reevaluate health status of organic personnel and advise commander.

d. Revise requirement for future operation.

e. Develop improved aeromedical plan and continue training programs.

Section VIII. MEDICAL CHECKLIST FOR BATTALION SURGEON

This checklist consists of five steps for the battalion surgeon in planning the medical support for an operation.

56. *S*—SUPPORT OF THE MISSION

a. Obtain briefing from battalion S3.

b. Estimate casualties.

c. Estimate logistical requirements.

d. Coordinate medical support—who is evacuated and where.

e. Coordinate radio frequencies.

57. *T*—TREATMENT

a. Brief aidman on tactical plan.

b. Coordinate location of aid station.

c. Evaluate special treatment required by weather or terrain.

d. Estimate special support requirements.

58. *E*—EVACUATION

a. Litterbearers—who, predesignate if possible.

b. Evacuation routes—ground and air.

c. Ground evacuation—available—limits—terrain—tactical situation.

d. Air evacuation—special problems of weather, terrain, tactical situation.

59. *P*—PREVENTION

a. Special training of aidmen and organic troops.

b. Special unit or individual preventive or protective measures required.

60. S—SUPPLIES

a. First-aid dressings.

b. Salt and soda packets.

c. Iodine tablets.

d. Salt tablets.

e. Malaria suppression tablets. (C–P, DDS, etc.)

f. Litters.

g. Blankets.

h. Splints.

Section IX. ARMY AIR LIAISON OFFICER CHECKLIST

61. WHAT IS THE GROUND TACTICAL PLAN?

(Obtain operation orders with overlays if possible and briefly summarize the planned operations.)

62. WHAT IS THE AVIATION MISSION?

(Airlanded assault, airlanded resupply, administrative troop lift, etc.)

63. GROUND CONTACTS

a. Location and time where air mission commander and ground commander can effect coordination.

b. Ground commander's name or call sign.

c. Unit designation.

64. HOW DOES THE AVIATION MISSION RELATE TO THE GROUND TACTICAL PLAN?

a. Number of troops (cargo) to be lifted?

b. How many lifts desired?

c. Minimum acceptable number of lifts?

d. Number of crew-served weapons and type?

e. Location of stage field?

f. Location of landing zones and landing zone times?

g. Location of artillery?

h. Type of close air support requested?

i. Suppressive fire restrictions?

j. Landing zone preparation times and how?

k. Landing zone and stage field security?

l. Mission of lift unit after assault to include gun ships and lift ships?

m. Refueling facilities?

GLOSSARY

Airmobile extraction—The lifting of combat troops by helicopters from terrain in which the enemy has the capability to resist. Resistance can be expected to increase as each lift is made and the friendly force's perimeter becomes smaller.

Army aviation element—A liaison element from the support army aviation element to the supported unit for coordination and planning of aviation operations. This element is normally found at division and higher levels.

Company lift—A unit of lift helicopters, capable of lifting the assault elements of a rifle company in one lift.

Eagle flight—Reaction force heliborne infantry elements (usually 30 to 40 troops) either on air alert over predesignated area or on immediate ground alert to perform immediate search and destroy operations, or otherwise provide the ground commander with a highly mobile and responsive strike force.

Forming turn—A turn executed after takeoff to permit aircraft or elements to join in formation or gain separation.

Heavy fire team—Three armed helicopters operating as a tactical element.

Helicopter drop point—A designated point within a landing zone where helicopters are unable to land because of the terrain, but in which they can discharge cargo or troops while hovering.

Intervalometer—An electronic or mechanical device used to trigger aerial cameras, rockets, or other equipment at preset intervals. As an example, intervalometers are used to fire aerial rockets at 100-millisecond intervals.

Laager—A perimeter type defense for local security of aircraft on the ground, established by aircraft crews in conjunction with friendly troops in the area. Armed aircraft are positioned where possible so that weapons systems may be employed in the defense.

Landing zone—An area jointly selected and approved by the ground commander and aviation commander where troops will be landed.

Lift—One movement of loaded troops by a complete flight from one type of zone to another.

Lift helicopter (Slick)—A helicopter used for the purpose of lifting troops and/or cargo.

Light gun team—Two armed helicopters operating as a tactical element.

Lightning bug ship—A helicopter equipped with searchlights to illuminate targets and PZs or LZs.

Loading area—A general geographical area that encompasses one or more loading zones where supporting aviation is linked up with the supported unit for the purpose of initiating an airmobile operation. The security of the loading area normally is not established by the participating force.

Maximum allowable gross weight—The maximum allowed total weight of the aircraft prior to takeoff; the basic weight of the aircraft plus the crew, personnel equipment, special devices, passengers/cargo, and fuel and oil. This is limited by structure, power available, or landing load.

Pickup zone—A geographical area, jointly agreed upon by the ground and aviation commanders, where troops, engaged with the enemy, will be loaded aboard aircraft for an airmobile extraction.

Pickup zone—A landing site, jointly agreed upon by the ground commander and aviation commander, where troops will be loaded

aboard aircraft for purpose of entry into an operation or for tactical extraction.

Sortie—One sortie is one aircraft making one takeoff and one landing for the purpose of loading/unloading personnel, ordnance, or fuel; however, armed helicopters escorting troop-carrying helicopters will log a sortie in the landing zone on combat assault operations whether or not they actually land.

Suppressive fires—Fires placed upon known or suspected locations of enemy troops, weapons, or likely enemy positions which, because of their proximity to the flightpath, present an immediate or potential threat to Army aircraft movements. Suppressive fires are employed during a helicopter assault of an enemy position in order to greatly reduce effective enemy small arms and automatic weapon fires directed against the assault landings. Fires are provided by armed Army aircraft and troop carriers on their final approach.

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